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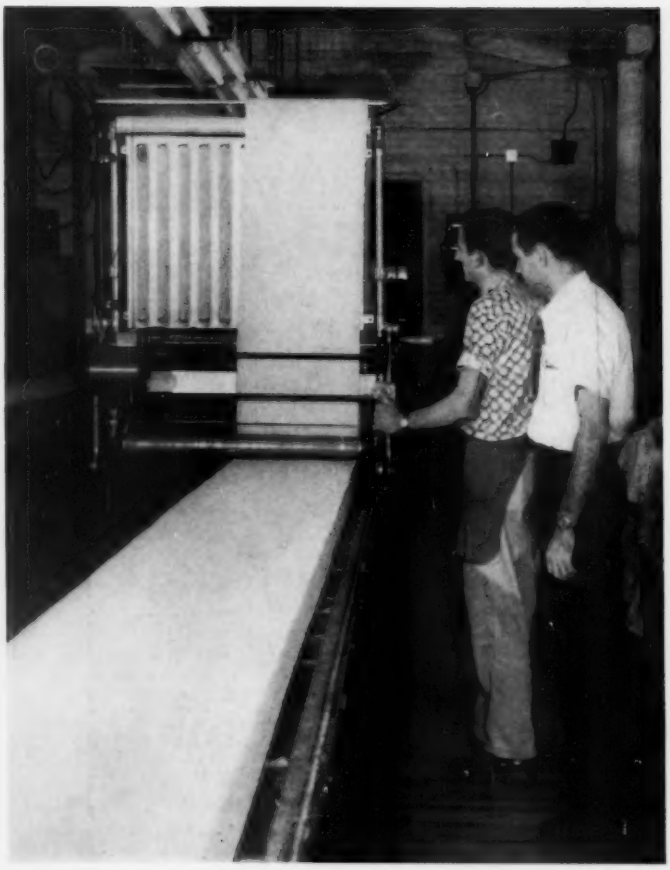
A McGRAW-HILL PUBLICATION

TEXTILE WORLD



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You get all 3 when you specify Victor Ring Travelers

Quality comes first in most people's minds. In the case of ring travelers, quality means precision. **And precision means Victor Ring Travelers.** From the standpoint of metallurgy, size, shape, and polish, they're made right — and that rightness shows in production figures. But quality doesn't count unless you know you can get what you need when you need it. Again, Victor comes through. You enjoy same-day service on all stocked sizes and styles ... exceptional speed of delivery on special orders, too. What about cost? Victor Ring Travelers are your most economical buy. Little wonder: like all Saco-Lowell parts, they're **built for better performance ... backed by better service.**

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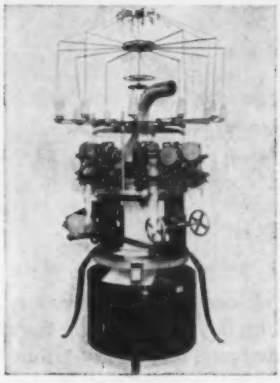
TOYS

COATS – RUGS – TRIMS

FBW-6



"HI-PILE" OPENS *MANY* MARKETS!

Luxurious fabrics produced on the Wildman Jacquard "Hi-Pile" knitting machine are popular the world over. Glamorous outerwear ...toys...linings...rugs...even industrial products are expanding their sales with "Hi-Pile" made of natural or synthetic fibers. Get the complete story on this famous Wildman Jacquard development.

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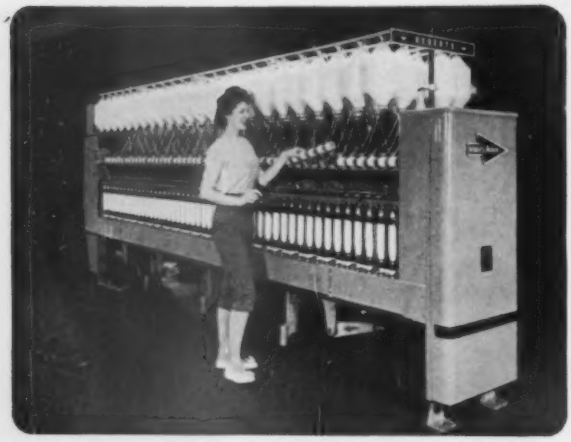
WILDMAN JACQUARD CO. • 1210 STANBRIDGE ST. • NORRISTOWN, PENNA. • MANUFACTURERS OF HEMPHILL BANNER KNITTING MACHINES

A Subsidiary of Draper Corporation, Hopedale, Mass.

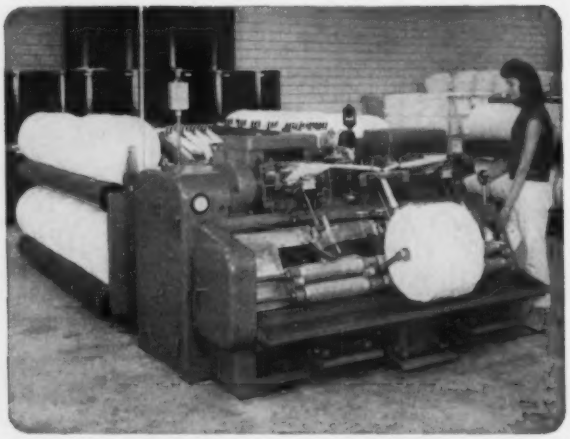
ROBERTS

YARN MAKING MACHINERY

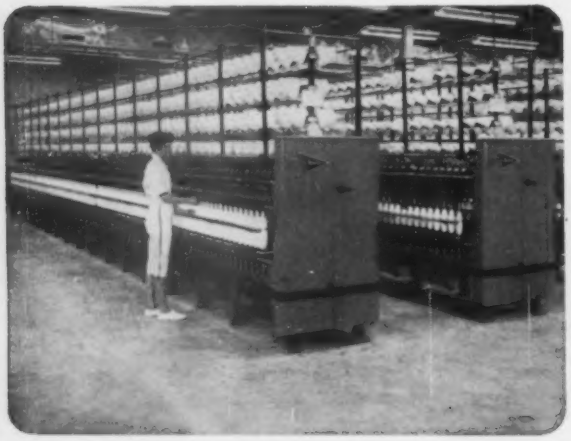
for Cotton, Worsted, or Long Fiber Systems



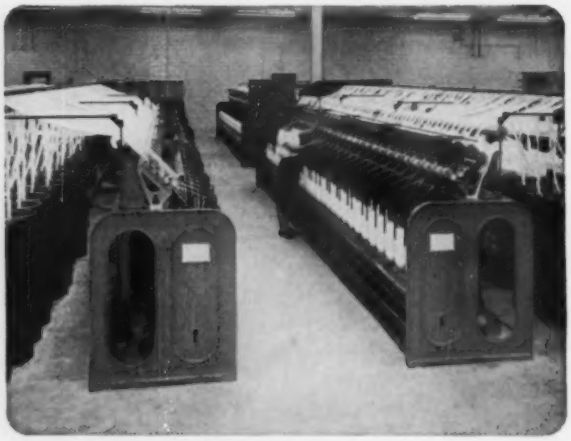
ROBERTS ARROW SPINNING for both cotton system and long fiber system yarn spinning for natural and synthetic fibers and blends. High speed, all ball bearing, big package Arrow Spinning Frames in 25-inch or 36-inch width. Exceptional flexibility and simplicity of operation in the manufacture of improved quality yarns at reduced costs and modest initial investment.



ROBERTS-TEMATEX worsted system preparatory machines, including ParaBlenders, ParaDrafters and AutoEveners, are rugged, high performance machines for pinning, parallelizing, drafting and blending worsted and synthetic fibers prior to roving and spinning, and in top making plants. AutoEvener automatically and instantaneously corrects delivered sliver weight to within plus or minus 1%.



ROBERTS TWISTERS for plying yarns are completely ball bearing equipped and designed for high speed ring twisting operations. 25- or 36-inch frames. Up to 3½-inch rings and 12-inch bobbins. Package weights 1¼ pounds on cotton, ¾ to 1 pound on worsted.



ROBERTS ROVING FRAMES are ball bearing rebuilt and feature all-new heavy duty ball bearing Roberts Double Apron Drafting Systems for cotton, short staple or long fiber synthetics, worsted and blends. 10x5 and 12x7 packages. Provisions for double headed spools.

Simplicity of design, rugged construction and high speed ball bearing operation are the trade marks of all Roberts Company machinery. Roberts also supplies rebuilt spinning frames and modernization change-overs for mills' existing machinery.

ROBERTS COMPANY

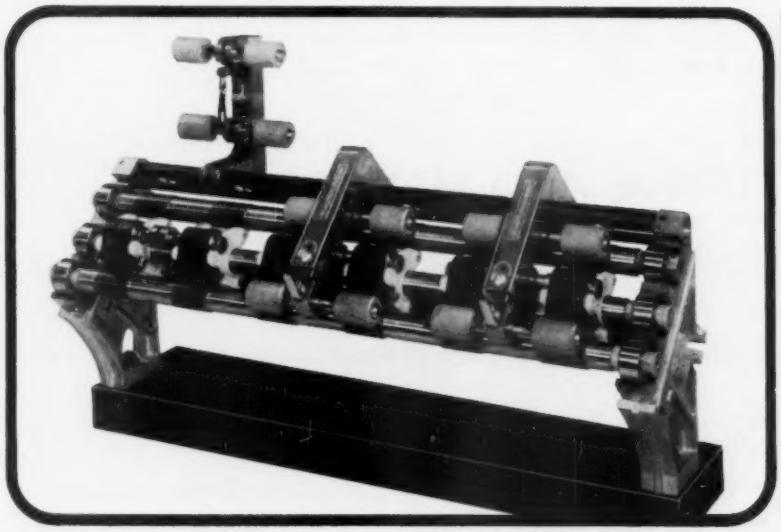
SANFORD, NORTH CAROLINA

YARN MAKING MACHINERY

ROBERTS NEWS

COTTON, WORSTED OR LONG FIBER SYSTEMS

Roberts FC Drafting System . . . Cleanest, Simplest, Best Yarn Quality



FC Drafting clears roll beam of all weighting attachments. Ball bearing bottom rolls on all three lines, shown above, are optional.

- Cleanest Running — Easiest to Clean
- Simplest — Fewest Number of Parts
- Highest Yarn Quality — Stronger, More Even Yarns
- Broadest Versatility — Cotton, Synthetics, Blends
- Short or Long Staple — Synthetics 1⅛" to 3"
- Coarse or Fine Yarns — 2s to 120s
- High Draft — 10 through 60
- Cartridge Weighting
- Roll Beam Clean — No Weighting Attachments
- No Lever Screws, Weight Levers and Hooks, Dead Weights
- PosiWate Pendular Arm Suspension — Positive Weighting
- No Oil in Entire Drafting Zone
- 3 Lines Ball Bearing Top Rolls
- Ball Bearing Bottom Rolls Optional
- Hardened Bottom Rolls with EvenGrip Fluting
- Nylon Cradles with Choice of Pin Opening
- Reduces Weight on Frame by ¾ of a Ton

ROBERTS COMPANY **Sanford, North Carolina**

Arrow Spinning Frames for Cotton and Worsted Systems • Twisters and Roving Frames
Tow-Transformers • ParaBlenders • ParaDrafters • AutoEveners

Roberts Company has achieved a most precision made cotton spinning system with its FC Drafting. It is the cleanest running, and the simplest with the fewest number of parts. It consistently gives the highest yarn quality from spindle to spindle and from year to year.

Dramatically new and improved in FC Drafting is a cartridge weighting arrangement which eliminates all weighting attachments to the roll beam, disposing of the lever screw, weight lever, weight hook and dead weight.

Used instead is an enclosed spring cartridge attached to a cartridge bar fastened between roll stands. A simple lever is depressed to unweight or to weight up the top rolls. There are no short springs inside the pendular suspension.

WIDE VERSATILITY

Coarse or fine yarns from 2s to 120s, cotton or synthetics and blends, and a broad range of drafts from 10 to 60, are efficiently handled by new FC Drafting.

Proper, efficient fiber control, fiber gripping and weight is provided without the limitations of other systems using short springs, weights or magnets.

FC Drafting can be arranged to handle short or long staple cotton, and synthetic fibers from 1⁹⁄₁₆" to 3" long. A choice of cradle lengths and solid or recessed apron top rolls provides this flexibility.

One arrangement handles cotton up to 1⁹⁄₁₆" long and synthetic fibers 1⁹⁄₁₆". Recessed top apron rolls may be used for synthetics of 2" to 2½" long. Another arrangement handles regular running of long staple cotton up to 1⁹⁄₁₆", or synthetics of 2" and less. The recessed roll extends this to 3" synthetics.

Send for Bulletin. **For further information on Roberts FC Drafting write for Technical Bulletin FC-101.**

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TEXTILE WORLD

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Coming Next Month:

Today's Best Ways to Handle Filling

In **October's TEXTILE WORLD,** you'll find help in selecting the filling-handling method and equipment best suited to your needs. There will be a roundup of the best that's available in techniques and equipment—problem-oriented to the mill, and complete with tables of operating data and cost estimates.

Also in October, you'll learn what the textile industry has at stake in research, and why it must support more textile research in the United States.

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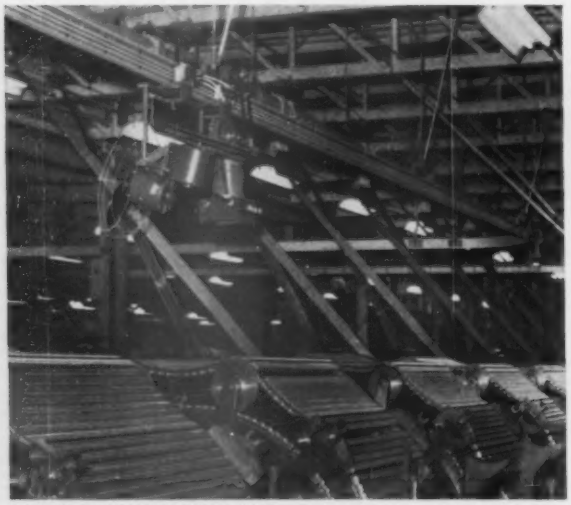
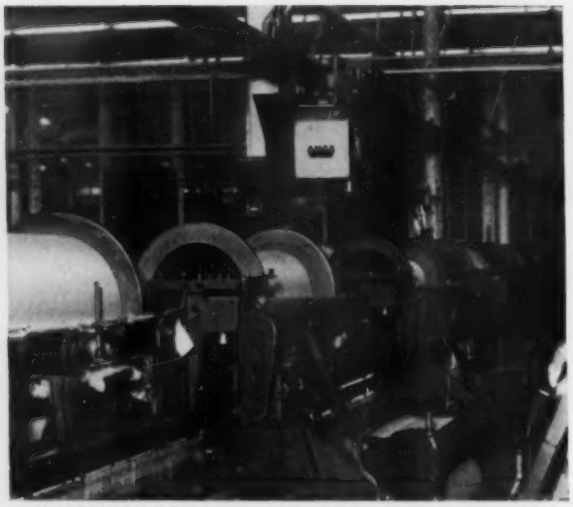
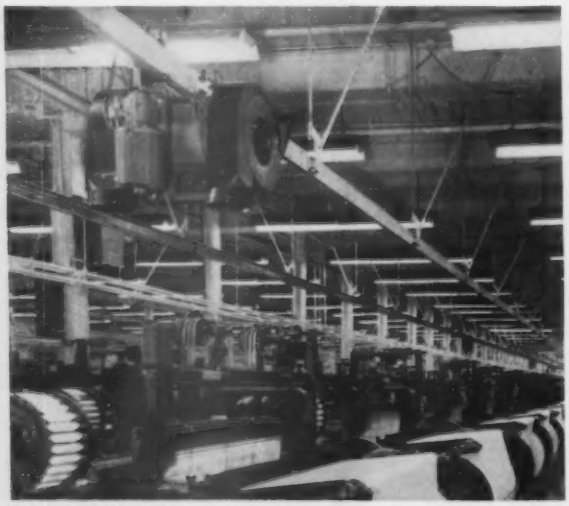
4 leading textile mills keep work areas clean automatically with Amco equipment



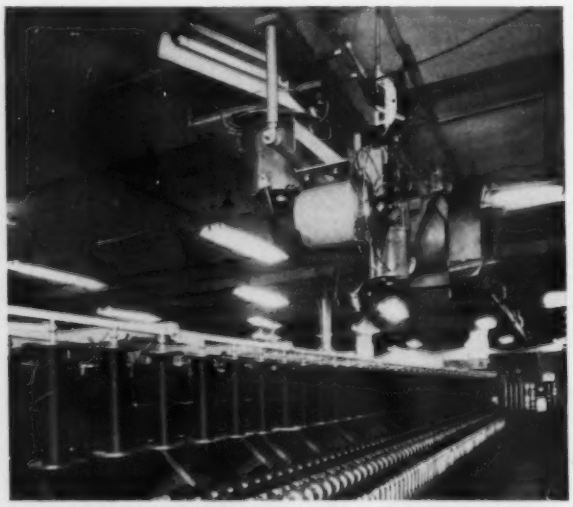
ALICE MANUFACTURING makes fine broadcloth in its Foster plant. Ceilings, walls, beams, pipes in card rooms are kept free from fly and lint with Amco Ceiling Cleaners. Result: fewer production interruptions for manual cleaning . . . and better quality.



CANNON MILLS, Kannapolis, N. C. plant produces high-quality terry cloth on looms equipped with Unifil loom winders. This fabric maker uses Amco Heliclone® Loom Cleaners for automatic, continuous cleaning. Result: greatly improved weave room cleanliness.



MAYFAIR MILLS, Spartanburg, S. C., relies on Amco Heliclone Loom Cleaners in print cloth weave rooms. Amco Cleaners drastically reduce manual cleaning costs . . . step up production . . . improve fabric quality by preventing waste accumulation.



PALMETTO WORSTED, Laurens, S. C. uses both Amco Heliclone Cleaners and Amco Ceiling Cleaners in its worsted spinning operation. Amco equipment prevents waste, lint and fly accumulations . . . boosts production and helps maintain quality.

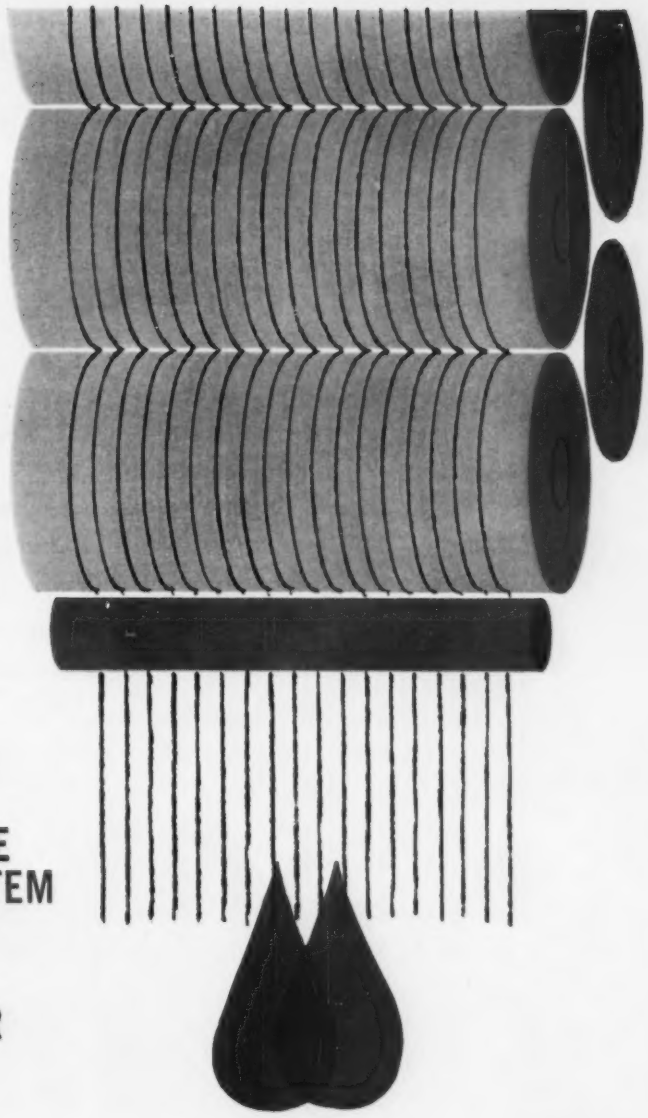
Learn how Amco automatic cleaning equipment can help *your* mill. See your nearest Amco representative.

AMCO

SINCE 1888

Air Conditioning Equipment — Textile Specialties

American Moistening Company, Cleveland, North Carolina Branches: Atlanta, Georgia, Providence, Rhode Island, Toronto, Ontario.



NEW MOISTURE CONTROL SYSTEM GIVES EXTRA-FAST RESPONSE FOR HIGH-SPEED SLASHERS

The new Honeywell *Moist-O-Graph IV* Control System delivers the extra-fast response needed to effectively measure and control regain of yarn on today's high-speed slashers.

Heart of the system's fast response is the new DPP (*Deviation Proportional Pulse*) Control Unit. By employing a new correcting technique, the DPP unit overcomes the production problems usually encountered with high-speed slashers equipped with conventional moisture control units.

In conventional systems, when the moisture deviates from the desired value, the control unit sends a correcting pulse of a fixed duration to the motor controlling the speed of the slasher. If, after a preset interval, the moisture content has not returned to this desired value, another correcting pulse—still of a fixed duration—is sent. This is repeated until the desired regain is re-established. On high-speed slashers this means that a lot of yarn races through the machine before the control unit can effect the proper regain.

With the DPP unit in the *Moist-O-Graph IV* system, correcting pulse signals to the motor are of a *duration directly proportional to the magnitude of the deviation* from the desired moisture content. The control unit quickly adjusts the slasher speed before any appreciable amount of yarn goes by. The desired per cent regain is held for practically the entire run.

For specific details on how the new *Moist-O-Graph IV* Control System can improve *your* high-speed slasher operation, contact your nearby Honeywell textile field engineer. He'll be glad to examine your production requirements, make detailed recommendations, and provide supervision for the complete control installation to ensure optimum performance. MINNEAPOLIS-HONEYWELL, Wayne and Windrim Aves., Phila. 44, Pa. In Canada, Honeywell Controls, Ltd., Toronto 17, Ontario.

Honeywell

H First in Control SINCE 1885

HONEYWELL INTERNATIONAL Sales and Service offices in principal cities of the world. Manufacturing in United States, United Kingdom, Canada, Netherlands, Germany, France, Japan

J. Mason Rowland, Overseer of Spinning at Joanna Cotton Mills, Division of Joanna Western Mills Co., Joanna, South Carolina, and Armstrong representative, Paul Rosser, check yarn uniformity at this spinning frame. Accotex NO-764 cots are used on front and back lines; Aprons are NO-7075.

Accotex cots and aprons can help you keep yarn quality high

The quality of your yarn — its smoothness, uniformity, strength — is controlled in large measure by the performance of your spinning cots and aprons. That's true no matter what type of fiber or blend you're spinning, and no matter what type equipment you're using.

The Accotex line of cots and aprons includes compounds that are engineered to help you maintain quality and minimize such difficulties as uneven yarn, excessive lapping, and eyebrowing.

For dependable suggestions on selection or performance of roll coverings and aprons, many mill men rely on their Armstrong representative. Here, for example, you see T. Paul Rosser working with personnel of the Joanna Cotton Mills, Division of Joanna Western Mills Co., Joanna, South Carolina.

Be sure to call *your* Armstrong man on any roll covering or apron problem. Armstrong Cork Company, 6409 Dauphin St., Lancaster, Pa.

ACCOTEX® IS A TRADE-MARK OF ARMSTRONG CORK COMPANY.

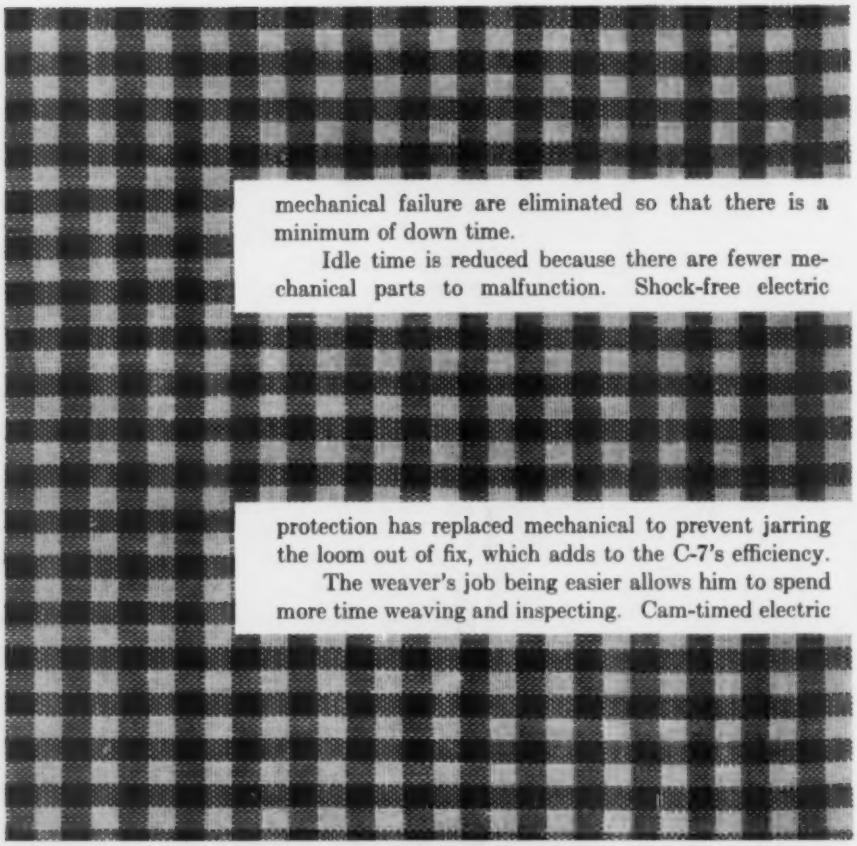
Left: David R. Meyers, Asst. Superintendent of Carding and Spinning, chats with Rosser about comber performance. The detaching rolls on this comber are covered with Accotex NO-728 and the draw box rolls with J-490 covers. Right: Gainvill Dozier, Roll Shop Foreman, operates this Armstrong Type "J" buffing machine, while Rosser looks on.

Walter E. Byars (left), Purchasing Agent, and Joseph L. Delany, Superintendent, look over Accotex textile products catalog with Paul Rosser.

Armstrong

ACCOTEX COTS AND APRONS

EFFICIENCY of a loom combined with Speed determines its ultimate Production—the amount of cloth woven in a given time. C&K's C-7 Loom operates with peak efficiency because most causes of yarn and

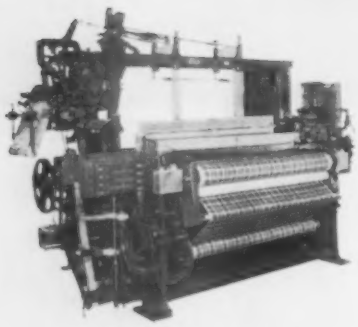


mechanical failure are eliminated so that there is a minimum of down time.

Idle time is reduced because there are fewer mechanical parts to malfunction. Shock-free electric protection has replaced mechanical to prevent jarring the loom out of fix, which adds to the C-7's efficiency.

The weaver's job being easier allows him to spend more time weaving and inspecting. Cam-timed electric controls substitute for many of his skills and efforts. He makes quicker filling and warp break repairs when they occur. Devices such as the automatic lay reversal when the filling breaks save operations he once performed. Single pick control for startups and push button lay reversal after tying in a warp end also increase the weaver's efficiency.

We'd like the opportunity to discuss further how these increases in productivity developed in the C-7 Loom can help reduce *your* cost per yard.



QSEWMT

QUALITY OF CLOTH · SPEED OF LOOM
EFFICIENCY · WEAVER ACCEPTANCE
MAINTENANCE COSTS · TRAINING TIME

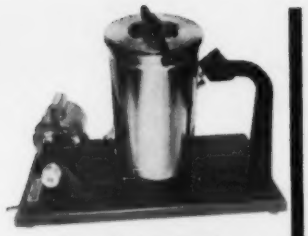
CROMPTON & KNOWLES CORPORATION

WORCESTER, MASSACHUSETTS

C&K

WORLD LEADERSHIP IN AUTOMATIC BOX LOOMS–RESEARCH–ENGINEERING–MANUFACTURE

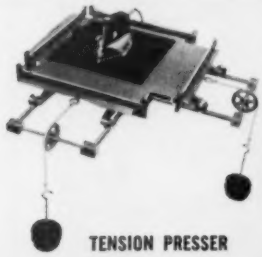
CHARLOTTE, N. C. / ALLENTOWN, PA. / Crompton & Knowles Jacquard & Supply Co. Pawtucket, R. I. / Crompton & Knowles of Canada, Ltd., Montreal, Quebec



DRY CLEANING AND WASHING MACHINE

MULTIMOTION ABRASION PILLING TESTER

A.A.T.C.C. FLAMMABILITY TESTER



TENSION PRESSER

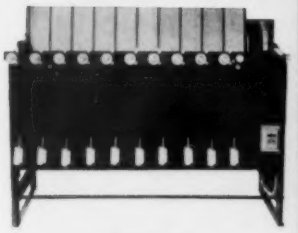
TWIST TESTER

FABRIC SHIFT TESTER

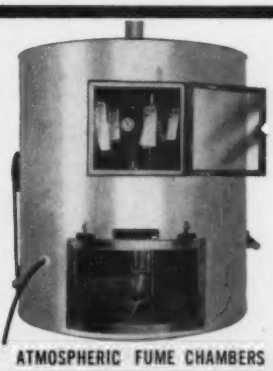
United States Testing Company, Inc. offers you

TEXTILE TESTING INSTRUMENTS

made by Testing Specialists

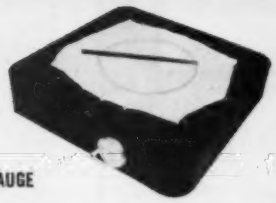


SERIPLANE



ATMOSPHERIC FUME CHAMBERS

FLAT BED PRESS



KNIT SHRINKAGE GAUGE

COMPLETE TEXTILE TESTING SERVICES

- Fiber Composition
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- Fabric Construction
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- Cost Analysis
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NAME TITLE

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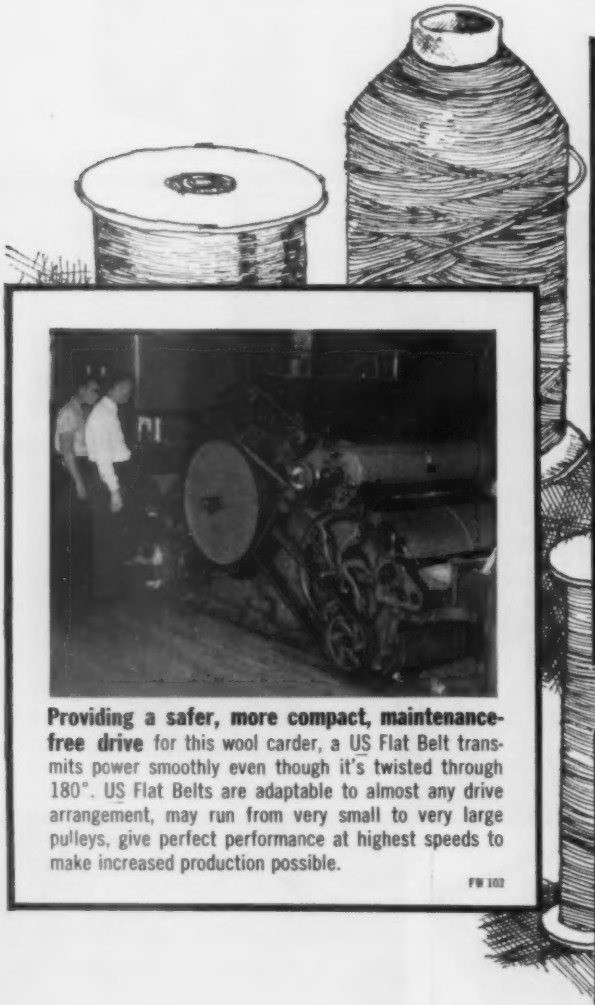
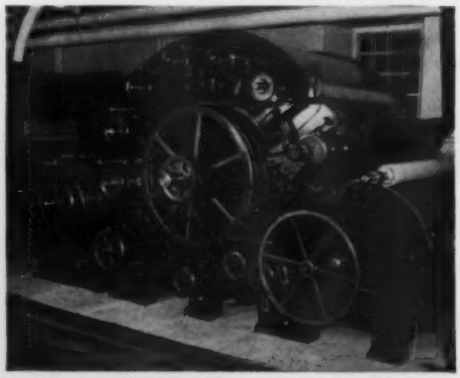
30

AT THE HEART OF THE TEXTILE INDUSTRY



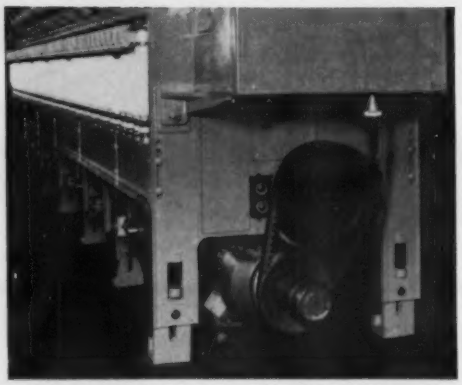


Providing perfect synchronization for this maze of rollers on the full roller of a wool carder, U. S. Royal V-Belts keep all parts of this machine going at the exact speed required, deliver top performance at many different rotational speeds. These V-belts have excellent length stability, require no maintenance, eliminate many metal parts.

VB 113

Providing a safer, more compact, maintenance-free drive for this wool carder, a US Flat Belt transmits power smoothly even though it's twisted through 180°. US Flat Belts are adaptable to almost any drive arrangement, may run from very small to very large pulleys, give perfect performance at highest speeds to make increased production possible.

FW 102



Keeping spinning frames like this one running smoothly and cleanly, U. S. Royal Variable Speed Belts are known for the long wear and dependable, maintenance-free service they give. These quiet-running, non-squashing, non-sagging belts have proved in textile plants everywhere that they consistently outperform all other belts.

VSB 104

Wherever you hear the hum of textile equipment, you'll find US Industrial Rubber Products helping to make production more efficient . . . more profitable. US is not only aware of the textile industry's needs, but has the products to serve them most effectively.

WORLD'S LARGEST MANUFACTURER
OF INDUSTRIAL RUBBER PRODUCTS

United States Rubber

MECHANICAL GOODS DIVISION

Rockefeller Center, New York 20, N.Y.

OIL-STAINED CLOTH indicates a serious leak in a mill's profits. It's a sign you should find out about Texaco's "Stop Loss" Program now.

Texaco's "Stop Loss" Program can help you plug some profit-leaks

. . . and can boost your profits by as much as 4%

Oil stains can mean there's a leaky bearing, somewhere. Or a careless oiler. But their real significance is this: your mill may be overlooking an opportunity to control costs as tightly as it should.

By organizing lubrication, your mill can increase net profits by as much as 4% per year! Where should you begin? Start with Texaco's "Stop Loss" Program. It enables any mill to realize all the savings available through good lubrication practices.

"Stop Loss" starts with a thorough study of your mill's lubrication requirements, from bale room to cloth room. This is followed-up with recommendations for a lubrication control system fitted to your mill's needs. Then Texaco provides the basic "tools" needed to make "Stop Loss" work easily and effectively for you.

See how "Stop Loss" can work for you! Send for more information. Then ask to see our new film, "Stop Loss with Organized Lubrication," which dramatically illustrates the many new opportunities there are for savings.

Tune In: Texaco Huntley-Brinkley Report, Mon. Through Fri.-NBC-TV

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ATTACH THIS COUPON TO YOUR LETTERHEAD

I'd like more information on Texaco's new "Stop Loss" program.

Name_____ Title_____

X-7 APRON: a textured surface for finger-tip control of yarn.

X-98 COT: outstanding anti-static properties at top temperatures.

X-35 COT: a positive grip that breaks up surface tension.

New Ingredients and Special Surface Texture Make These Dayco Aprons and Cots Superior

Cash outlay for aprons and cots is but a small part of the cost involved in the spinning operation, yet use of the right apron and cots combination can do much to increase efficiency. Before you place your next order, add to your file of information on superior aprons and cots these facts about the new Dayco X-7 apron . . . Dayco's X-35 and X-98 cots:

FINGER-TIP CONTROL OF FABRICS

Dayco's X-7 apron, readily identified by its pink color and triangle imprint, has, as the micro-photo inset makes clear, an amazing skinlike surface that permits unusual control of fibers of every type. And the X-7 combines with its efficient handling of fibers many other qualities equally important.

It offers exceptionally high resistance to ozone checking as well as lengthwise cracking caused by flex. Its resilience and sturdiness are equally impressive, enabling the Dayco X-7 to meet, fully and satisfactorily, the demands of modern drafting.

POSITIVE GRIP FOR BETTER DRAFTING

Visual inspection of Dayco's X-35 cot, intended primarily for use on the back line, reveals that it contains somewhat finer particles of material than are usually found in cots of medium Shore hardness.

Many such cots, because of their larger cell structure and comparative softness, lack sufficient tensile strength. But Dayco's X-35 does not. While providing a positive grip that breaks up surface tension, it also meets all other standards of fine performance.

NEW INGREDIENTS PERFECTLY COMBINED

Like Dayco's X-7 apron, the X-98 cot, recommended for front-line use, derives its superiority from a new formulation. The anti-static properties retained by the X-98 even at high temperatures deserve special mention. Its durability is also noteworthy, as is the top-quality yarn it helps deliver.

Originally developed to meet the problems of a particular mill experiencing heat build-up, the X-98 is typical of Dayco's approach to customer service. Demand for the X-98, as word of it traveled from mill to mill, has made it an important new item in Dayco's complete line of cots.

GO DAYCO ALL THE WAY

Whether a few, or whether hundreds of thousands of a product are marketed, Dayco research and quality control are constantly at work. A fine field staff stands ready to answer any questions you may have about the suitability of any Dayco product for a given assignment.

Put the best to work for you in the best possible way, with the help and advice of your Dayco representative! Phone or write Dayco Textile Products, 401 South Carolina National Bank Building, Greenville, S. C.; Overseas plant: Dundee, Scotland.

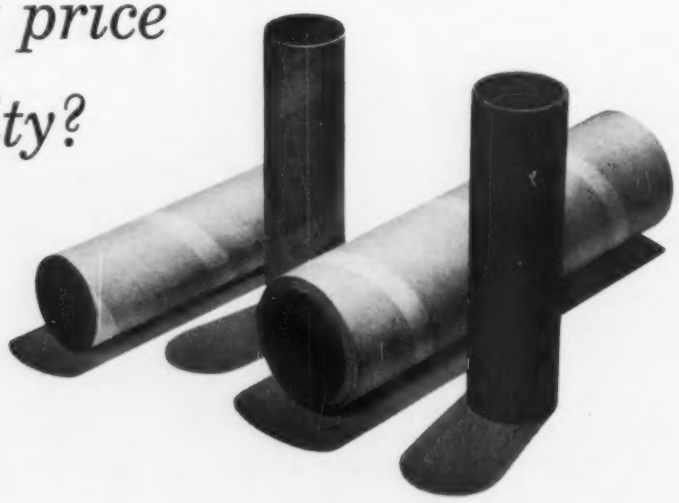
Dayco TEXTILE PRODUCTS

Divison of Dayco Corporation

CIRCLE 15 ON READER SERVICE CARD

Sonoco Paper Tubes...

what price quality?



Dependable, uniform performance is the extra quality delivered by Sonoco with every order of textile paper tubes and this quality works to your advantage. Your real *savings* come after your initial cost because Sonoco tubes provide trouble-free foundations for perfect packages.

Sonoco produces all types of spiral, convolute and parallel tubes. Supplying customers with the *right* type of yarn carrier, at reasonable cost, is achieved through advanced processes which permit the manufacture of paper tubes with unusual properties. Qualified Sonoco sales engineers are ready to assist you with economical solutions to your particular yarn carrier problems.

Technical service of this type is an added benefit when you buy from Sonoco. *Only Sonoco,* in its field, is in a position to keep pace with the textile industry through research and product development. Sonoco's more than 60 years' experience can benefit you.

SONOCO

Products for Textiles

sonoco

SONOCO PRODUCTS COMPANY, HARTSVILLE, SOUTH CAROLINA • Mystic, Conn. • Akron, Ind. • Ravenna, Ohio • Lowell, Mass. • Holyoke, Mass. • Phillipsburg, N. J. Longview, Texas • Philadelphia, Pa. • La Puente, Calif. • Fremont, Calif. • Atlanta, Ga. • Richmond, Va. • **MEXICO:** Mexico, D. F. • **CANADA:** Brantford, Ont. • Granby, Quebec

3094

HIGH QUALITY

Attained through:
- Minimum of defects
- Perfect mixture of materials
- Uniform weaving action

Resulting in:
- Less supervision
- Easy personnel training
- Reduction in down time
- Practically no replacement parts
- High productivity
- Making it possible to operate at —

MINIMUM COST

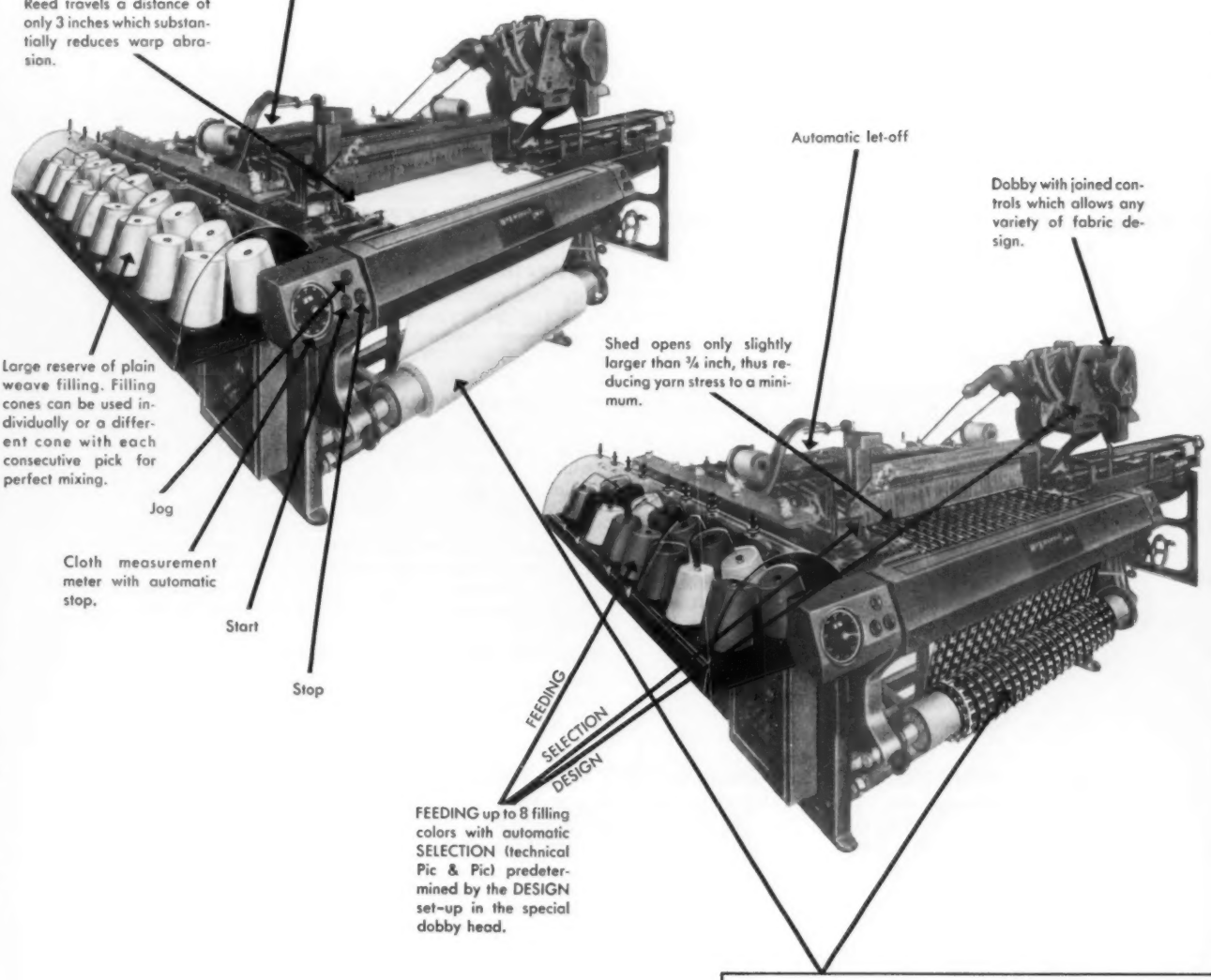
Fabrics can be woven:
- Using 8 filling colors or materials
- In any design
- From any material

This combination will permit a

GREATER PARTICIPATION IN THE MARKET

- and the Universal Iwer loom provides the three essential elements:

HIGH QUALITY + LOW COST + FLEXIBILITY


Constant warp tension
Reed travels a distance of only 3 inches which substantially reduces warp abrasion.
Automatic let-off
Dobby with joined controls which allows any variety of fabric design.
Shed opens only slightly larger than ¾ inch, thus reducing yarn stress to a minimum.
Large reserve of plain weave filling. Filling cones can be used individually or a different cone with each consecutive pick for perfect mixing.
Jog
Cloth measurement meter with automatic stop.
Start
Stop
FEEDING
SELECTION
DESIGN
FEEDING up to 8 filling colors with automatic SELECTION (technical Pic & Pic) predetermined by the DESIGN set-up in the special dobby head.

Plain Weave or a Pattern can be woven on the SAME LOOM at an incomparably low cost!

SHUTTLELESS LOOM

universal IWER

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MAQUINARIA TEXTIL DEL NORTE DE ESPAÑA, S. A.
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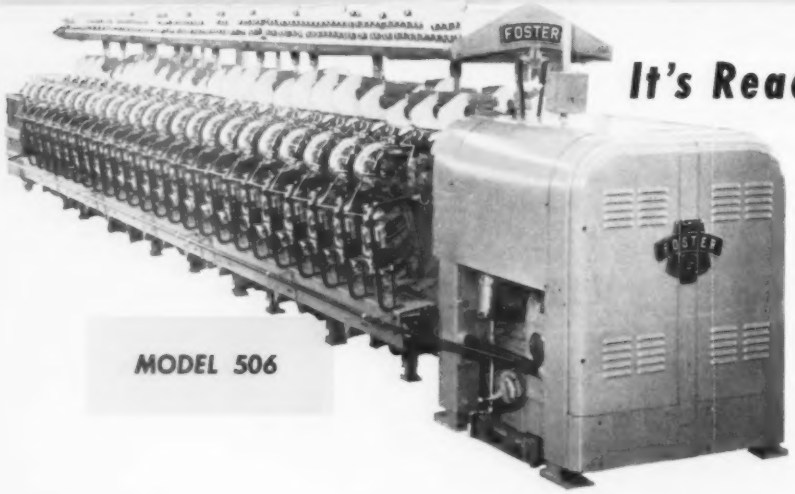
CIRCLE 17 ON READER SERVICE CARD

PACITA

FOSTER MODEL 506 AUTOMATIC WINDING MACHINE



It's Ready! It's Selling!

Additional machines will be shipped, beginning this September, to such progressive mills as A. M. Smyre Manufacturing Company, Ranlo, N. C., The Russell Manufacturing Company, Alexander City, Ala. and Swift Spinning Mills, Inc., Columbus, Ga.

Firestone Synthetic Fibers Co., Hopewell, Va., and E. I. Dupont de Nemours & Co. of Seaford, Md., have also placed orders for the Model 510, another version of the 500 series.

THE FOSTER MODEL 506 BENEFITS YOU IN 8 WAYS:

1. Increases operator productivity by 50%.*
2. Winds at twice the speed of our manual winder.
3. Requires less floor space per pound of yarn produced than our manual winder.
4. Prevents wild yarn (butterflies), tangles, bobbin rings, crossed ends, uneven package density and rough yarn.
5. Electric size stop breaks back yarn, eliminating gauging of package diameter by hand.
6. Produces any type of open wind putup, including a steep taper (9°36') knitting cone up to 14" in diameter.
7. The Model 506 cone is an even better package than the Model 102 cone (standard for the sales yarn market for many years).
8. Investment required is no more than for our manual winders with same capacity and similar features.

**Substantiated and documented in mill tests, under production conditions.*

AUTOMATIC FEATURES

Only those operations which will NOT endanger yarn or package quality have been automated. These include threading up, slubbing and cleaning, disposal of empty bobbins, gauging full cones, donning full bobbins and doffing empty bobbins.

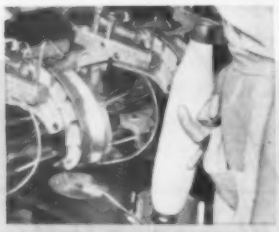
SPEEDING UP MANUAL OPERATIONS

To keep the mill investment required within practical limits and to assure top yarn and package quality (which is so vital to sales yarn spinners), donning and doffing of cones, providing the bobbin supply and knot tying are still done manually. However, providing the bobbin supply and tying knots have been so simplified that altogether they require only fractions of a minute. Wild yarn, tangles, bobbin rings, crossed ends, uneven package density and rough yarn (which are unavoidable at times with automatic knot tying) are definitely prevented.

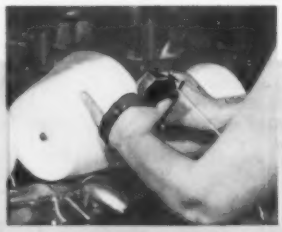
YOU CAN STILL GET EARLY DELIVERY

We will put 1,000 additional spindles of the Model 506 into production in December for delivery early next year. If you want early delivery, order NOW!

MANUAL OPERATIONS WHICH TAKE ONLY FRACTIONS OF A MINUTE AND PROTECT YARN QUALITY



Dropping bobbin in chute.



Tying knot with standard high speed knotter and testing — all with left hand.

Restarting spindle with right hand.

266-1

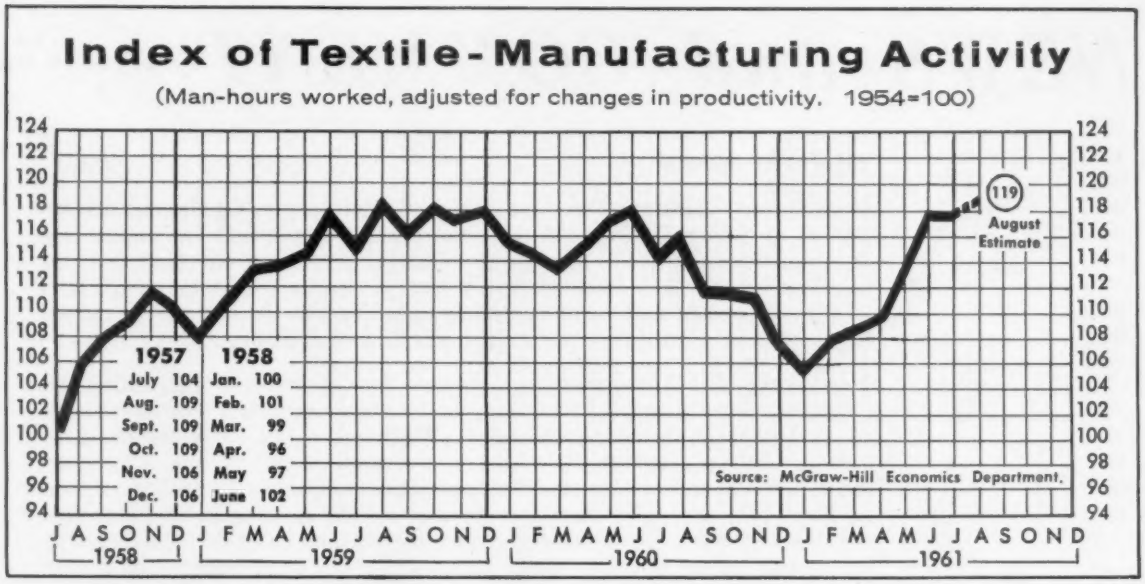
FOSTER MACHINE COMPANY

A YARN WINDER FOR EVERY PURPOSE

Westfield, Massachusetts, U.S.A.

Member of American Textile Machinery Association

SOUTHERN BRANCH — Route 85, Belmont, N. C. • CANADIAN REPRESENTATIVE — Ross Whitehead & Co., Ltd., 2015 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ontario • EUROPEAN REPRESENTATIVE — Muschamp Textile Machinery (Sales) Limited, Eider Works, Wellington Road, Ashton-under-Lyne, Lancashire, England • REPRESENTATIVE IN MEXICO — Carlos Rios Pruneda, Av. Juarez No. 145 Desp. 17, Mexico 1, D. F.



A Second Wind

Textile production is catching its second wind, poised to equal its all-time high. TEXTILE WORLD's exclusive Index of Textile Manufacturing Activity held steady in July at 118—still one point shy of the record set in October 1959. But it is expected to equal that record in August (chart). A shot-in-the-arm: Government buying as a result of the Berlin crisis (page 22).

•

The economy is still improving despite doubts and dire predictions from some government officials earlier this year that business activity would not recover quickly from last winter's recession.

The Federal Reserve Board's Index of Industrial Production rose to 112 (1957=100) in July, an all-time record. All major industrial sectors shared in the July increase, with production of durable goods turning in a particularly strong performance.

Continuing gains should come in the months ahead with growing consumer demand reinforced by stepped-up defense spending—even if the Berlin crisis doesn't get worse. By December 30, defense spending will run at an annual rate of over $51-billion, and by the end of next June the rate will be near $54-billion.

Even without more defense spending our federal budget for fiscal 1962 would have been written in red ink to the tune of $5-billion. Including stepped-up defense spending, the deficit for July 1, 1961 to June 30, 1962 will run $6.5-billion. There is no doubt that spending to produce a deficit of that size will be a powerful stimulus to the economy.

Figures of the Month

TEXTILE-INDUSTRY INDICATORS

	Latest Month	Previous Month†	Year Ago
TEXTILE WORLD'S Exclusive Index (chart above)	118	118	115
Employment (thousands)[1]	917.2	928.0	941.8
Production Workers (thousands)[1]	823.9	834.0	847.8
Weekly Earnings (dollars)[1]	65.44	65.93	64.31
Hourly Earnings (dollars)[1]	1.64	1.64	1.62
Weekly Hours Worked[1]	39.9	40.2	39.7
Production Index (1957=100)[2]	112	112	113
Wholesale Price Index (1947-49=100)[3]	93.8	93.7	96.3
Manufacturers' Sales (billion $)[2]	1.27*	1.22	1.27
Manufacturers' Inventories (billion $)[2]	2.74*	2.76	2.70
Inventories-to-Sales Ratio	2.16*	2.26	2.13
Exports (million $)[2]	90.9*	108.5	122.5
Imports (million $)[2]	90.8*	92.4	109.2
Stock Price Index (1941-43=100)[4]	29.11	28.42	27.49
Failures[5]	4	6	5

NATIONAL ECONOMIC INDICATORS

Industrial Production (1957=100)[2]	112	110	110
Consumer Price Index (1947-49=100)[1]	127.7	127.6	126.6
Wholesale Price Index (1947-49=100)[1]	119.7	119.0	119.7
Civilian Population (millions)[6]	181.1	180.9	178.2
Unemployment (millions)[6]	5.1	5.6	4.0
Employment (millions)[6]	68.5	68.7	68.7
Personal Income (billion $)[2]‡	419.2	417.3	404.7

* June; otherwise latest month is July. † Revised. ‡ Annual rate.

1. Bureau of Labor Statistics; 2. Federal Reserve Board; 3. Department of Commerce; 4. Standard & Poors; 5. Dun & Bradstreet; 6. Bureau of the Census.

NEWS and COMMENT • • • • • •

Briefs at Home

Washington—Hickman Price Jr., Assistant Secretary of Commerce, accompanied by Labor Department men and other experts, left for Japan late in August presumably to negotiate a bilateral agreement on quantities and kinds of textiles that Japanese will export to the United States (page 22). The Japanese are said to be unwilling to ratify the Geneva textile agreement without a prior agreement with the United States. . .

New York—The Association on Japanese Textile Imports, Inc. called the 17-nation Geneva pact a backward step in world trade and said imposition of quotas would invite retaliation. . . **Washington**—In 1960, for the first time in 41 years, imports of textiles and apparel of cotton, wool, and man-made fibers exceeded exports. The margin was equal to 58-million pounds of fiber. On the other hand, imports of cotton textiles in the first five months of 1961 dropped sharply—yarn, thread, and cloth down about 39% and other cotton products down about 22%. In June exports of cotton cloth were 16.1% above May 1961 and 18.5% above June 1960. . .

Atlanta—Southern plants in the first quarter of 1961 turned out 2,500-million linear yards of cotton broad woven and man-made-fiber goods. Top state in cotton goods, South Carolina; in man-made-fiber goods, North Carolina. . . **Washington**—The President's Committee on Equal Employment Opportunities has announced its new rules and regulations. Alongside companies in other industries signing a pledge not to discriminate in employment were three textile companies: J. P. Stevens & Co., Riegel Textile Corp., and Prestex, Inc. . . .

New York—Cannon Mills boosted prices 2½% on terry cloth, sheets, and pillowcases, reflecting higher cotton prices on August 1 and the new $1.15-per-hour minimum wage on September 3. . . **Washington**—The Labor Department has asked for a $1-per-hour minimum wage for learners in apparel, knitted wear, glove, hosiery, and some other industries. . .

Briefs from Overseas

Australia—Wool output in 1961-62 may total about 1,679-million pounds, up nearly 3% from 1960–61, reports TEXTILE WORLD's Alicja Grobtuch from Melbourne. . . **Great Britain**—Courtaulds, Ltd. will join with United Merchants & Manufacturers (New York) to make and sell glass fibers and fabrics for industrial and home markets, reports TW's London bureau. . .

Netherlands—Paul Catz, TW's newsman in Amsterdam, reports another merger into Nijverdal-Ten-Cate, Dutch textile giant. This time it is with Royal Weaving Company Meyerink & Sons, makers of household and industrial fabrics near the German border. Mergers previously announced involved C. T. Stork & Co. and Spanjaard & Vlisco. . .

United Arab Republic—Premier Nasser's abolition of the Alexandria cotton futures market is seen (by TW's James Picton in Cairo) as an attempt to break the Communist bloc's hold on Egypt's cotton market. The Egyptian Cotton Commission will set prices in line with world markets. Communists have been paying high prices for Egyptian cotton, selling it at a loss in Western Europe to obtain hard currency, and making up their losses by charging 30 to 40% more for products they sell to Egypt.

Company Earnings

Company	Period	Sales ($1,000's)	Change From Year Ago	Earnings ($1,000's)	Change From Year Ago
Adams-Millis	Hlf. to 6-30	$7,817	−12.3%	261	−43.9%
American & Efird	Qu. to 7-2	12,186	+16.1%	210	+142.3%
Beaunit Mills	Qu. to 6-30	24,754	− 4.6%	708	−31.1%
Belding-Heminway	Qu. to 6-30	10,241	+ 5.5%	186	−26.9%
Belding-Heminway	Hlf. to 6-30	20,657	+21.0%	325	−25.4%
Berkshire-Hathaway	Hlf. to 6-30	10,669	−26.1%	(412)*	———
Berkshire-Hathaway	9 mo. to 6-30	36,284	−26.2%	396	−89.9%
Bigelow-Sanford	Qu. to 6-30	21,657	+ 8.5%	577	− 5.8%
Bigelow-Sanford	Hlf. to 6-30	40,153	+ 6.9%	903	−11.4%
Burlington Indus.	Qu. to 6-30	215,504	− 3.5%	6,402	−15.8%
Burlington Indus.	9 mo. to 6-30	637,551	− 7.4%	16,226	−43.4%
Cluett, Peabody	Hlf. to 6-30	56,725	+13.2%	2,089	+ 3.9%
Cone Mills	Hlf. to 6-30	107,893	+ 4.5%	1,249	−56.3%
Dan River Mills	Hlf. to 6-30	74,243	−13.6%	2,392	−35.5%
Erwin Mills	Qu. to 6-30	19,184	+ 7.3%	572	+ 0.5%
Erwin Mills	9 mo. to 6-30	50,986	+ 4.5%	1,260	−25.1%
Johnson & Johnson	Hlf. to 6-30	160,112	+ 3.8%	7,737	− 2.8%
The Kendall Co.	Qu. to 6-30	26,770	+ 2.1%	913	−25.8%
The Kendall Co.	Hlf. to 6-30	52,740	+ 8.5%	1,929	−16.6%
M. Lowenstein	Qu. to 6-30	111,625	− 4.8%	374	−79.7%
M. Lowenstein	Hlf. to 6-30	225,936	− 6.6%	963	−75.1%
McGregor-Doniger	Hlf. to 6-30	22,245	− 5.5%	426	−18.2%
Manhattan Shirt	Qu. to 6-30	9,846	+ 2.4%	279	+ 1.7%
Manhattan Shirt	Hlf. to 6-30	19,293	+ 2.9%	364	+12.2%
Mt. Vernon Mills	Hlf. to 6-30	16,816	−14.7%	244	−41.8%
Pepperell Mfg. Co.	Yr. to 6-30	90,916	− 9.3%	3,220	− 7.8%
Riegel Textile Corp.	9 mo. to 7-8	62,559	−12.7%	1,067	−43.6%
Roxbury Carpet Co.	Hlf. to 6-30	7,263	−11.9%	(49)*	———
Textiles Inc.	9 mo. to 6-30	20,701	− 7.6%	975	−18.8%
Wayne Knitting	Hlf. to 6-30	5,792	− 5.2%	350	+13.3%
American Cyanamid	Qu. to 6-30	152,724	+ 5.0%	11,556	− 2.9%
American Cyanamid	Hlf. to 6-30	330,907	+ 8.5%	23,732	−16.8%
American Viscose	Qu. to 6-30	n.a.	n.a.	1,500	−11.1%
American Viscose	Hlf. to 6-30	101,200	− 6.0%	3,300	− 7.9%
Celanese Corp.	Qu. to 6-30	71,482	+ 1.1%	5,061	−31.6%
Celanese Corp.	Hlf. to 6-30	133,516	− 2.9%	8,621	−14.2%
Crompton & Knowles	Hlf. to 6-30	16,618	+14.7%	1,494	+ 9.9%
Draper Corp.	Hlf. to 6-30	32,181	− 3.1%	1,551	−13.8%
Koppers Co	Qu. to 6-30	70,200	−12.8%	1,833	−25.3%
Koppers Co	Hlf. to 6-30	129,039	−12.9%	2,757	−34.6%
Leesona Corp.	Hlf. to 6-30	14,189	−10.7%	803	−41.1%
Mill Factors	Qu. to 6-30	67,215	+14.0%	144	+31.0%
Mill Factors	Hlf. to 6-30	127,526	+11.3%	291	+26.5%
Owens-Corning Fiberglas	Hlf. to 6-30	104,166	− 2.3%	5,542	−29.8%
Penick & Ford	Qu. to 6-30	n.a.	n.a.	1,015	+ 4.8%
Penick & Ford	Hlf. to 6-30	n.a.	n.a.	2,171	− 2.2%
Rayonier, Inc.	Qu. to 6-30	33,989	− 4.2%	2,179	−32.2%
James Talcott	Qu. to 6-30	n.a.	n.a.	1,287	+22.9%
James Talcott	Hlf. to 6-30	671,156	+ 7.4%	2,459	+15.6%
Whitin Machine	Hlf. to 6-30	33,181	− 5.1%	863	−66.3%

* (Loss)

WASHINGTON OUTLOOK • • •

There's talk of a minor victory for Commerce Department over State Department and other administrative agencies on the question of who will represent United State business interests abroad—textile interests in particular.

The negotiating team that went to Tokyo to work out a quota agreement on textiles was officially headed by Hickman Price Jr., Assistant Commerce Secretary for domestic affairs. Price, who once was an automobile executive (Willys and Mercedez-Benz) in Brazil, has been getting heavy homework and briefing on textiles ever since he took office earlier this year. Price is known in Washington as a hard-hitting industrialist. He looks good to most textile executives.

But behind the scenes, Secretary of Labor Arthur J. Goldberg set up the initial planning and arrangements for at least part of the Tokyo talks. This move came after the Amalgamated Clothing Workers threatened to boycott Japanese clothing and textiles in mid-summer.

No one will talk about it, but Price apparently was empowered to clear with the Japanese on a broader scope than just a voluntary quota for men's suits—the item that set off the current industry uproar. No one will comment on the significance of Goldberg's planning part in the Tokyo talks and Price's selection as chief negotiator. But Washington sources claim it appears Commerce has worked itself up another notch in an attempt to get more say in international business dealings.

•

The Berlin defense buildup looks as if it means more to the textile trade than perhaps any other single industry. The Military Clothing & Textile Supply Agency in Philadelphia buys all uniforms and cloth goods for all services. Last year it bought around $150-million worth of military clothing and textiles. The agency has a total stock of some 20,500 different items in its catalog worth more than $1.5-billion.

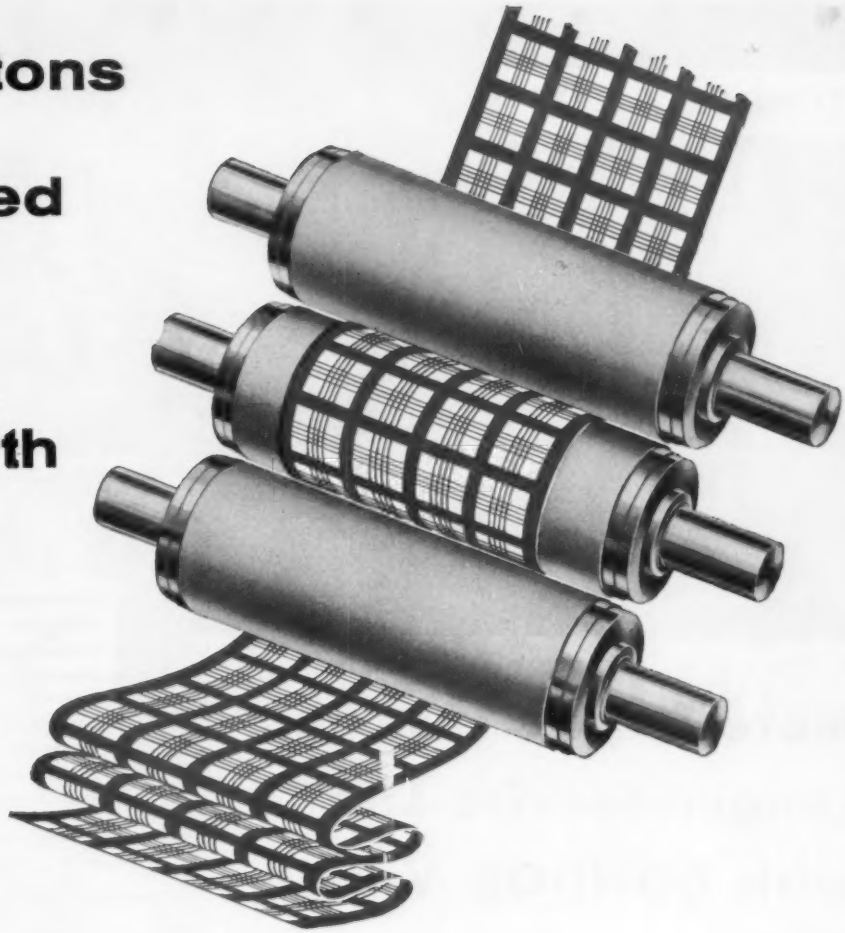
The emphasis on manpower calling for 217,000 more men in our Armed Forces means that this agency will have to increase its buying by at least 10%. Most of the initial needs will come off the shelf. But stocks will have to be replenished and extra buying will be ordered.

It's possible that the Military Clothing & Textile Supply Agency might lose its identity in the current plans for reorganizing the defense setup. The Pentagon is planning to set up a new agency called Defense Supply Agency. This agency would incorporate the Military Clothing & Textile Supply Agency and seven others with similar jobs such as food procurement.

•

Textile men are keeping an eye on a new office for foreign investment in the United States now being formed at Commerce Department. The new office was pushed by Secretary of Commerce Luther Hodges to attract more foreigners to invest in the United States to help ease the balance of payments. Chemical fiber and other textile raw-material outfits from abroad are expected to use the office for investigation of moves in this country. In addition, the department will publish the first detailed update of foreign business in the United States since World War II. It will appear next month in Commerce's "Survey of Current Business."

More Cottons are finished on Butterworth Pressed Rolls than any other make



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Butterworth Rolls are built to last . . . using the finest materials . . . with the right degree of hardness and smoothness for the finish you require.

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Install Condor V-belts on your machine drives and get the advantages of the best engineered V-belt construction. R/M construction features provide the smoothest running V-belts made, balanced-built to insure maximum belt life under all drive load conditions.

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CONDOR ENDLESS BELTS—Condor Whipcord Belts outlast as many as 10 ordinary flat belts.
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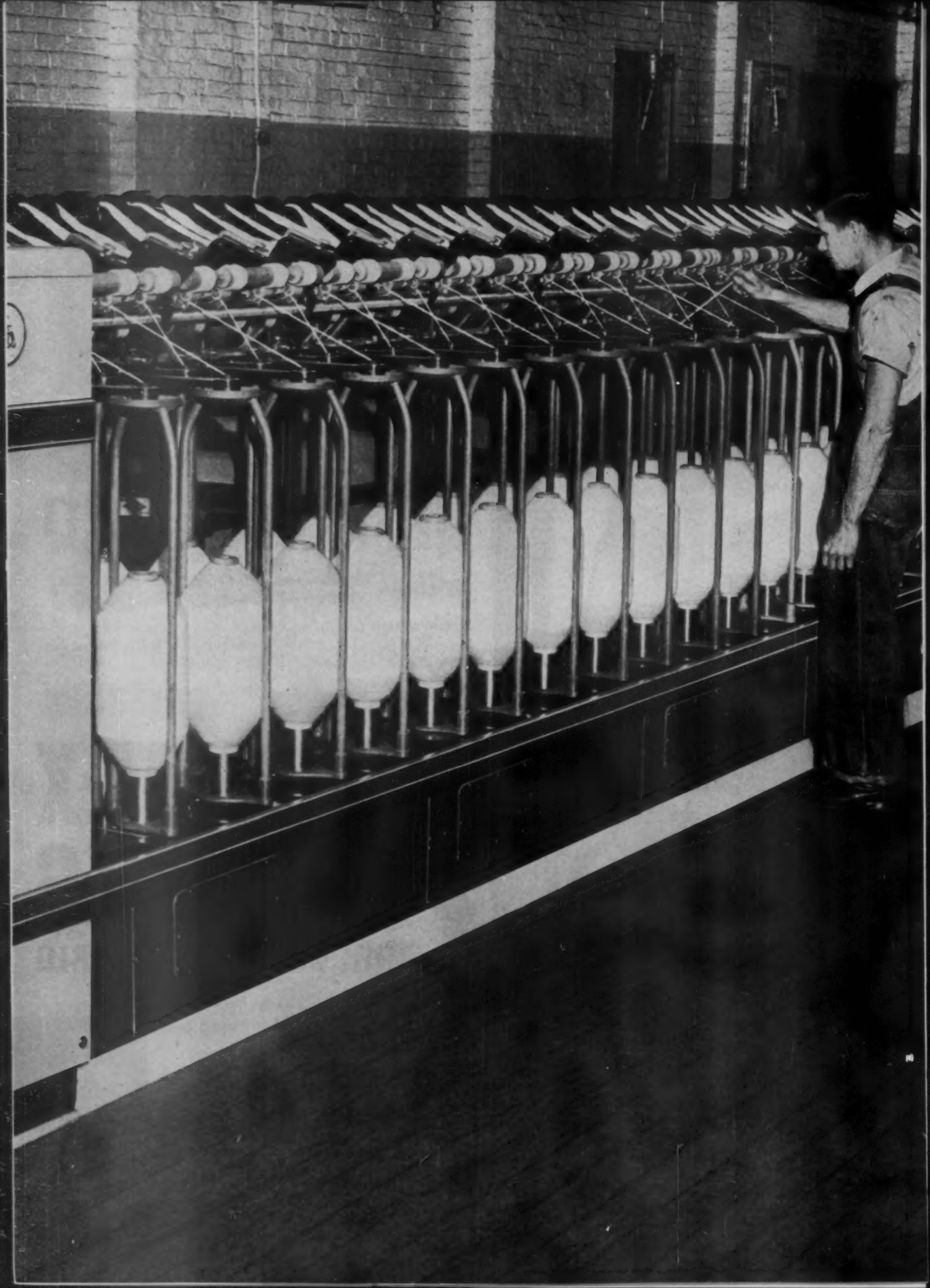

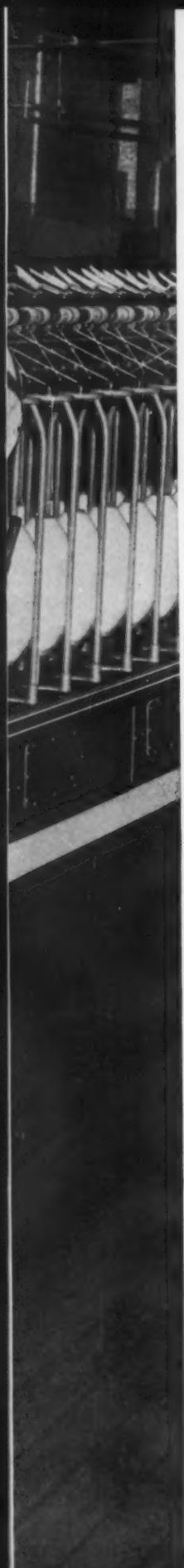

Now 8 New Rovematic Frames Equal Output of 13 Standard Frames

After 135 years, a totally new roving frame concept, from Saco-Lowell: the Rovematic. The first major re-design of the roving frame since 1825, Rovematic operates easily and efficiently at 1200 R.P.M. maximum flyer speed or 350 R.P.M. maximum front roll (1⅛") speed, producing a 14" x 7" package of higher quality roving.

In 5 working days, a single 80-spindle Rovematic frame, utilizing FS-2 drafting system with Tru-Set weighting and producing 1.00 hank roving, consumes 30 bales of cotton. Rovematic's speed enables 8 such frames to do the work of 13 conventional machines. Frame for frame, Rovematic increases production an important 60%.

Change gears and adjusting mechanisms are located in the head-end cabinet and all major components run in an oil bath, which needs replenishing only at 2 to 3 year intervals. And Rovematic requires a minimum of cleaning, too! The heavy, cumbersome traversing carriage and many other traditional roving frame parts are eliminated. Rovematic flyers are dynamically balanced. Its spindles telescope for quick and easy doffing without removal of flyers.

Traverse is gained by variation in relative speed of spindle components, so Rovematic has no cones or cone belts . . . no reversing shafts. Rovematic also builds the largest packages at the highest speeds yet attainable, without any problem of deflection or excessive wear.

Lab-tested, mill-proven, Rovematic is not a dream for the future. Like all Saco-Lowell textile machinery, it's **built for better performance, backed by better service.** And it's ready to go to work now. Call in our nearest sales engineer today for complete details.

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Rovematic: the first totally new roving frame design in 135 years.

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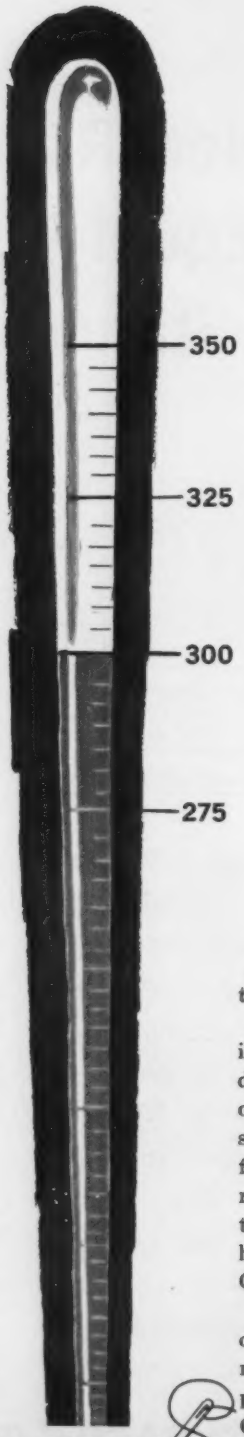
B.F.Goodrich

New Geon vinyl resin cools down plastisols



Geon 135

CUTS COSTS OF CASTING, DIPPING, COATING, MOLDING. New Geon 135 is a vinyl copolymer that makes a plastisol which fuses at 300 degrees F . . . 50 degrees lower than plastisols based on other resins. Faster production or lower cost of oven operation result.

Since Geon 135 is a copolymer, less plasticizer is needed to obtain equivalent hardness than for compounds based on conventional paste resins, reducing costs further.

In addition to economy benefits, Geon 135 lowers Brookfield viscosity and yield value, improves viscosity aging. Geon 202, 427 or 428 can be blended with Geon 135 to lower plastisol viscosity even further.

These properties of Geon 135 make it ideal for rotational molding, slush molding, dip molding, stencil printing on calendered or extruded vinyl sheeting, vinyl foam, sponge, and as a tie-coat for lamination of film to fabric. Low fusion temperatures make Geon 135 especially useful for plastisols used to apply spread coatings to heat-sensitive materials such as Dacron, Orlon and polypropylene.

To get more information on how you can cut costs with Geon 135, write Department PF-9, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

PRODUCTS FOR TEXTILE IMPROVEMENT

B.F.Goodrich Chemical

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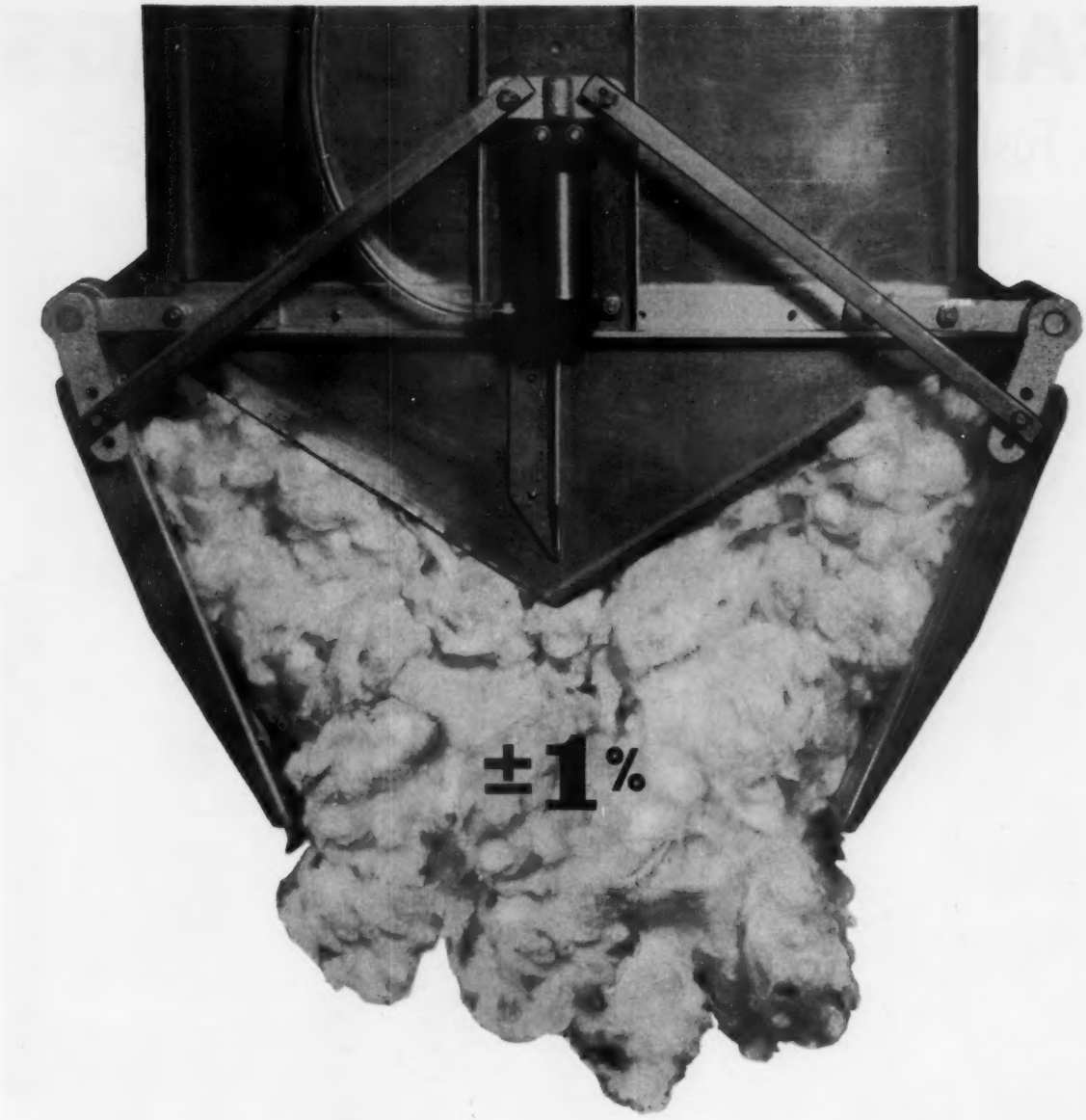

IF YOU ARE BLENDING FIBERS...

Hunter Fiber Meters® assure precise blending accuracy, with a maximum variation *not exceeding* ±1%! This precision is combined with fully automatic operation and continuous blend quality. The result? Fast, consistently uniform blending of *any fiber in any percentage...at lowest cost!* Two complete blending lines, with capacities up to 3,000 lbs. per hour, can be operated by a single man. Blending labor is reduced as much as 65%, while quality control is not only safeguarded, but improved. Because Hunter has *specialized* for 114 years in the development and manufacture of textile machinery *exclusively*, it possessed the technical skill to perfect its unique Fiber Meter. From weighing mechanism to magnetic latches, every Fiber Meter is constructed *throughout* with typical Hunter dependability, assuring minimum maintenance and downtime. By converting your conventional blending operation to a Fiber Meter Automatic Blending System, you can anticipate exceptional benefits. Many astute mill owners now depend on it for continuous profits. If you're not one of them, don't you think you should be! For constructive on-the-scene assistance and more detailed information, a Hunter Engineer will be glad to call...without obligation. Or, write today for Hunter's ***Fiber Meter Bulletin C.***

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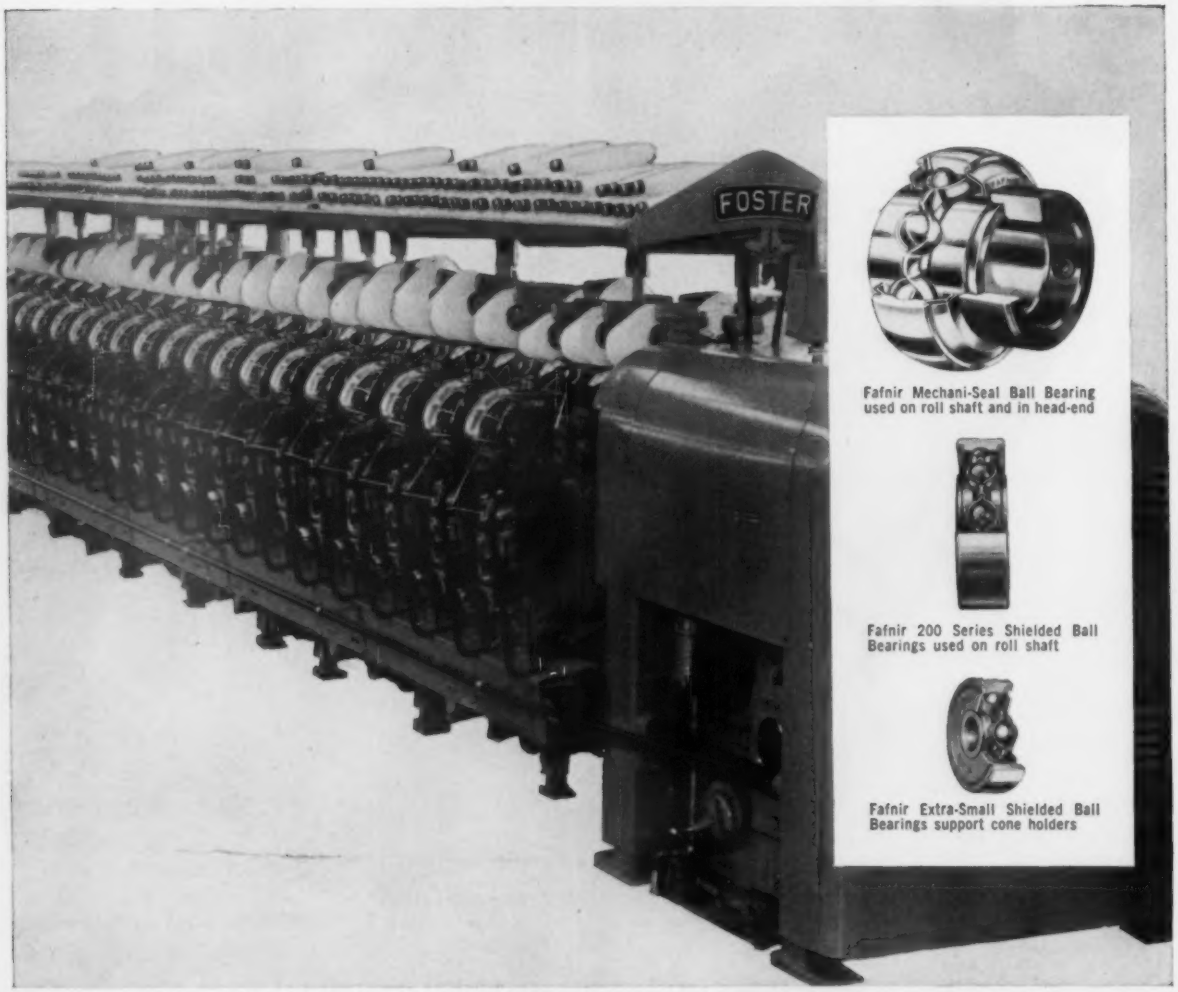
JAMES HUNTER

FAFNIR BALL BEARINGS

Foster's choice for precision winding... low upkeep



Fafnir Mechani-Seal Ball Bearing used on roll shaft and in head-end

Fafnir 200 Series Shielded Ball Bearings used on roll shaft

Fafnir Extra-Small Shielded Ball Bearings support cone holders

New Fafnir-equipped Foster 506 Winder

Foster Machine Company worked closely with Fafnir bearing engineers in designing the new 506 Winder. The result is a machine built for precision, high-speed winding with negligible bearing maintenance.

Fafnir Mechani-Seal Ball Bearings are used in the head-end and on the roll shaft. Frictionless seals provide positive protection at high shaft speeds. Shielded Fafnir Ball Bearings also provide excellent protection where space is limited — on the cone holders and the loose shells on the roll shafts.

When your design reaches "turning points," take a page from Foster's book. Look to Fafnir's breadth of line and 50 years of experience with textile requirements to solve your bearing problems. Call your Fafnir branch office. Or write the Fafnir Bearing Company, New Britain, Connecticut.

MADE IN U.S.A.

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This stamp on a Fafnir Ball Bearing means finest quality and workmanship . . . dependable supply . . . competent engineering help . . . and responsibility in meeting your bearing needs. It's worth bearing in mind.

FAFNIR
BALL BEARINGS

Look what Leesona's
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...with the Number 512

They've made it more economical than ever — with cost-cutting operation of the Number 512 *Ring Twister*. Look at these important improvements which give you larger packages of better quality at lower cost: 12-inch traverse . . . Heavy Duty Spindle . . . 3 to 1 builder cam ratio . . . lightweight, smooth traversing ring rail . . . Fast-acting stop motion that reduces knots in the ply and eliminates drop-ply.

Also, consider the reduced maintenance with sealed oilless bearings . . . a full length roller beam that protects against lint . . . and removable, easy-to-clean 7-unit spindle separators. These and still other improvements make the Number 512 the most advanced Ring Twister for all types of yarn. Find out how it can benefit your mill. Contact your nearest Leesona Sales Engineer for the new brochure containing full details, or write LEESONA CORPORATION, Providence 4, Rhode Island.

LEESONA

The Number 512 proves again... *Leesona leads... to better fabrics*

The Whitin Model M Card

- New Automatic Card Feed
- New Tape Condenser
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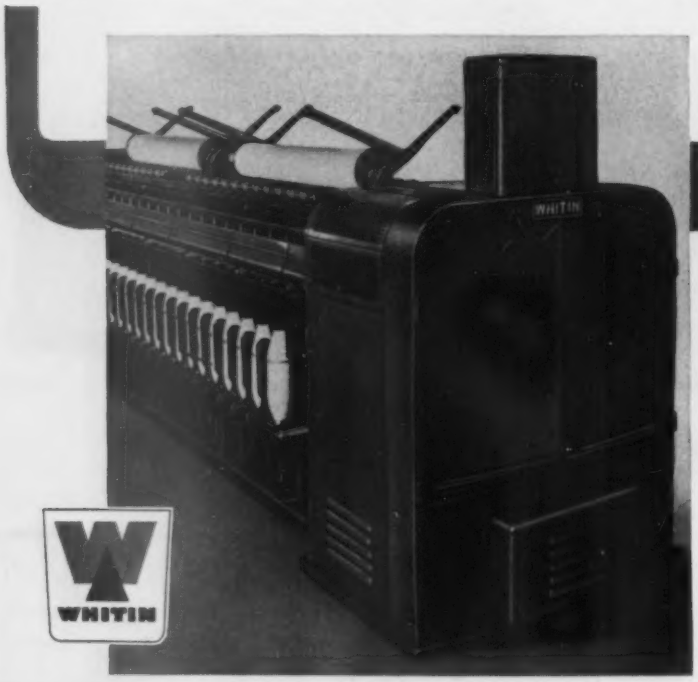
- ATF Variable Speed and V Belt Drive for Feed Table
- V Belt Drive for Strippers, Breast, Doffer, Fancy and Condenser
- Antifriction Bearings throughout
- * P.I.V. Drives on Breaker Feed Rolls and Finisher Doffer

A "Natural Combination" for greater profit

The new Model M Card and the famous FLEX-SPIN Model L2 Wool Spinning Frame are two new "stars" for your production team. The Model M Card in either 60" — 72" or 84" widths has tremendous productive capacity. The FLEX-SPIN with its 16" traverse produces packages carrying up to 20 oz. of soft knitting yarn or up to 32 oz., or even higher, on weaving yarns.

Together, these two great new machines form a feature-filled "natural combination" that's got what it takes — and just what you need — not only to *boost* your production and *maintain* quality, but also to *cut* your operational costs through improved machine efficiency and work simplification.



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- Side Shaft Twister Head Drive
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- Variable Speed Drum Drive
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*Optional Equipment

For complete information ask your Whitin representative or write direct to us.

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16-acre Weeks Division Plant requires 3300 tons of refrigerated air-conditioning.

Inspecting the air-conditioning in the modern Looping Room of the Weeks Division are Hanes Board Chairman R. B. Crawford and Agnew Bahnson, Jr., President, The Bahnson Company.

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Bahnson Central Station Systems at the new Weeks Division Plant provide year 'round air-conditioning, custom-designed to suit each step in Hanes' integrated manufacturing process. Hanes Board Chairman R. B. Crawford praised the Bahnson air-conditioning installation and its operational efficiency. The Bahnson Company takes pride in being part of Hanes' nationally acclaimed Weeks Division Plant.

Call in Bahnson when you have air-conditioning problems or plans. Bahnson specialists are backed by almost a half century's experience in industrial air-conditioning.

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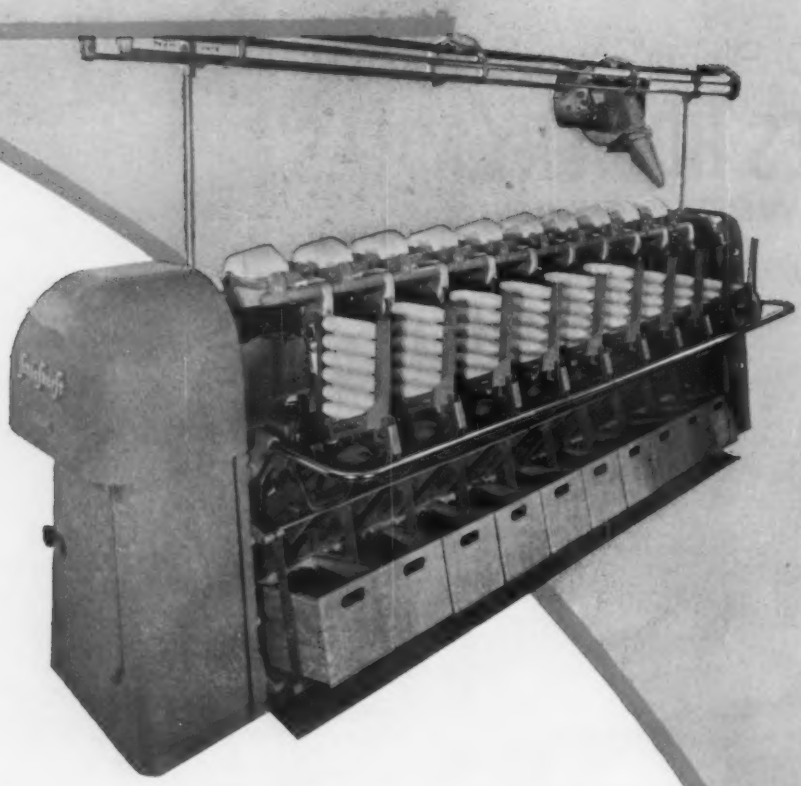

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OVER 40,000 SPINDLES

have been sold to textile plants in Europe, the United States and Canada. Why?

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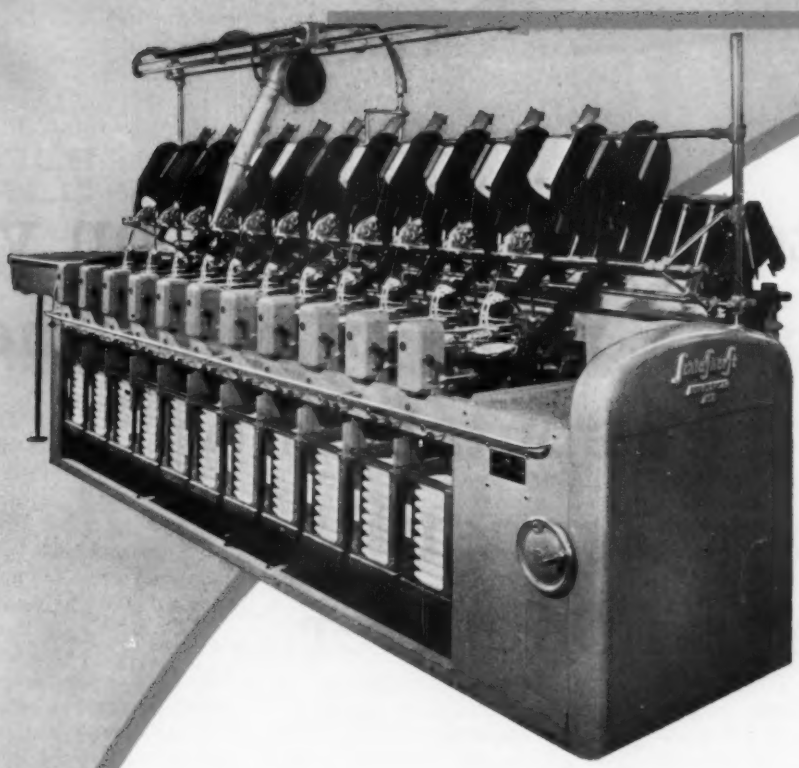

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AUTOCOPSERS are now furnishing filling for over

20,000 LOOMS IN 80 MILLS

in just the United States and Canada.

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CIRCLE 35 ON READER SERVICE CARD

"....often the main reason you choose a piece of machinery is the reputation of the equipment manufacturer...."

WHO SAYS SO?

The quotation above is taken verbatim from an interview with an executive of a large U.S. mill. He was speaking of the principles which guide him in making the final decision for the purchase of capital equipment involving thousands of dollars of his company's money.

His convictions are worth repeating here.

"As far as I am concerned, the equipment manufacturer is as important as the equipment itself. In some of our installations we might have the same type of equipment as another mill but the difference in the equipment might be the manufacturer. Every manufacturer says its equipment is better and sometimes it becomes extremely difficult to choose between one machine and another. We try to compare performance and price but I think that *often the main reason you choose a piece of machinery is the reputation of the manufacturer.* We bought a [_____] machine. We could have bought a much cheaper machine but we were willing to pay the price because of the reputation [_____] has for superior equipment."

...we were willing to pay the price because of the reputation...

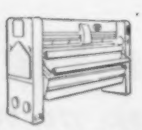
You can't build a reputation by offering "me too" equipment at a cut-rate price. We are old-fashioned enough to believe that our customers should receive full value for their dollar—in performance, dependability, service and satisfaction.

We invite your close scrutiny of our reputation for delivering what we promise. We've been doing it for generations. Next time you're looking for a good "fit" in equipment, try our reputation for size.

Rodney Hunt Machine Co.

RODNEY HUNT

TEXTILE MACHINERY DIVISION | 66 Mill Street, Orange, Massachusetts



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TEXTILE WORLD . . . Editorial Vol. 111, No. 9, September 1961

When Everything Comes Up Roses . . .

YOU DON'T have to look around these days for signs of vigorous improvement in the textile industry. Not at all. In fact, the signs clamor for attention. They tell the story unequivocally: The industry is fast moving into a period of busy activity, with promise of still better times yet to come.

Sample the signs:

• **Mill operations** — TEXTILE WORLD's exclusive Index of Textile-Manufacturing Activity (page 19) stands at 119 for August—highest point since October 1959, when it was at 119. Recent low was 106, last January. In May, June, and July the Index surged up swiftly—a rise of four points in the three-month period.

• **Inventories**—Ratio of textile inventories to sales (page 19) has dropped for four straight months: 2.38 in March, 2.30 in April, 2.26 in May, 2.16 in June. Prediction: a still lower ratio in July.

• **Earnings**—Still a long way to go before they're satisfactory. But, on the whole, picking up. First quarter was generally poor. Second quarter, a little better. Third and fourth quarters, most management men predict, much brighter.

• **Prices**—Firmer all around, with some significant upswings. For instance, early in August the *Wall Street Journal's* daily report on 80x 80 print cloth showed a rise to 17¾¢ from 17½¢, the first change in months.

• **Military buying** — The Army Quartermaster Corps, buyer of textiles for all defense activities, sees a 10% increase in its needs because of the stepup in the cold war and the Berlin crisis.

• **International trade**—The Geneva agreement in July, though still not formally ratified by any of the participating nations, at least recognizes the need for order rather than chaos in the international textile trade. What's more, the level of textile imports to the United States has dropped off sharply in recent months. Result: some reassurance about the future among American producers.

• **Personal income**—A new all-time high in July, with annual rate rising to $421.8-billion, up $17.1-billion over June.

Add it all up, throw other cheerful available facts into the mix, and things begin to look pretty rosy all over—in fact, so very good that . . .

. . . It's Time to Watch for Trouble

WHY? Because, in bygone periods of busy activity and rosy outlook, the industry too often has planted the seeds of its own downturn, thus bringing on—and aggravating—cyclic problems that otherwise might not have arisen at all or, if they did arise, would have been less severe and more easily manageable. In short, if we read the industry's history right, it may face more hazards in prosperity than in adversity.

This need not be so today. Not if management men this time spot the hazards early and act quickly to avert them—or even turn them to good.

What do we have in mind? Here are a few of the hazards, plus a few suggestions about how to meet them:

• **Overproduction**—Watch the industry's ratio of inventories to sales (page 19). Make it one of your guides for production schedules. Also, watch your own company's ratio. And see to it that market information reaches you swiftly and that action follows promptly.

• **Price competition**—To compete on price alone is ruinous. That way, you're at the mercy of any short-term fly-by-nighter who, panicked by a little too much inventory or a temporary shortage of cash, unloads his shelves at ¼¢ below your price. Today, while business is healthy, is the time to demand—and get—a profitable price for your products, selling them on the basis of brand identification, dependability of supply, quality, freshness of design, delivery—or almost any other basis than price.

• **Softness on costs**—It's easy now to go soft on that cost-improvement program you set up last fall. Don't do it. A year ago your motive in searching for cost-cutting methods and machines was just to stay in business. Today's motive—a bigger mill margin—is just as compelling and the rewards are more satisfying. Besides, a sound profit now is your best way of building a sound basis for the years ahead.

• **Tolerance of obsolescence**—Just because business is picking up, don't yield to the temptation to relax on your modernization program. Don't keep on working with obsolete machines just because they're still doing pretty well. "Pretty well" isn't good enough these days, and it can spell disaster for you if the going gets rough again. Let "nothing but the best" be your word for today.

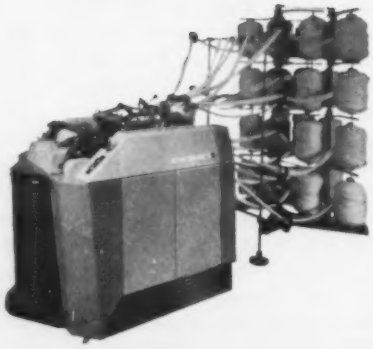
SACM

COTTON

The SACM DRAWING FRAME, Model ER, has introduced to the textile industry the technique of the two-head high speed machine. Numerous mills highly appreciate its other new but well-proven engineering features: simplified settings, no-lap drafting, outstanding evenness, no-stretch positive-control creel, remarkable accessibility, etc. Ask for more information from SACM's sales agents for a complete line of cotton-type machinery in the U.S.A.: MEDLEY MANUFACTURING COMPANY, 400 Thirty-Second Street, COLUMBUS, Georgia, Tel. FA 2-1695.

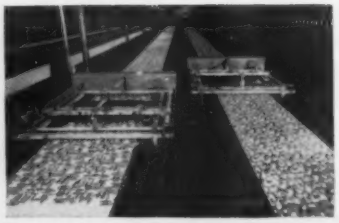
WORSTED

The PERL COMB for worsted and synthetic fibers has set new standards for combing speeds and production. No one makes a French Comb like the French, and you will find no substitute for the experience of the manufacturer who pioneered this combing technique: SACM. In the U.S.A. and Canada, Sales and Service are provided by ATKINSON, HASERICK & CO., INC.— FRAMINGHAM, Massachusetts (TR 3-7496)

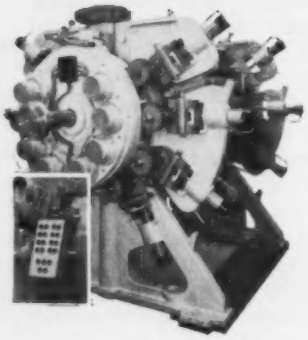


PRINTING & FINISHING

SACM's AUTOMATIC SCREEN PRINTING CARRIAGE offers a new concept in profitable screen printing: this is not the usual machine printing, but full automation of top-quality hand printing, with the highest accuracy around the clock, low-cost and high returns.

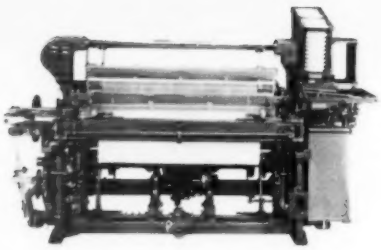


This ROTARY CLOTH PRINTING MACHINE with push-button register adjustment at high speeds and remote-control accurate air-oil pressure on the printing rollers brings new standards of precision, safety, quality and profitability to roller printing. Ask mills who use this technique: their enthusiasm will convince you that you must inquire about the SACM Printer before purchasing any equipment of this type. Also Steam Ageing, Curing, Cloth Joining Bars, etc. Contact SOCIETE ALSACIENNE DE CONSTRUCTIONS MECANIQUES, Mulhouse, France, or 3 Channing Place, Cambridge 38, Massachusetts, U.S.A.

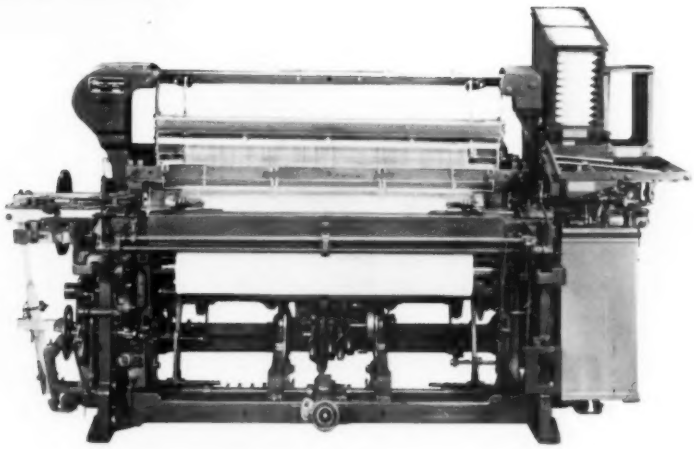


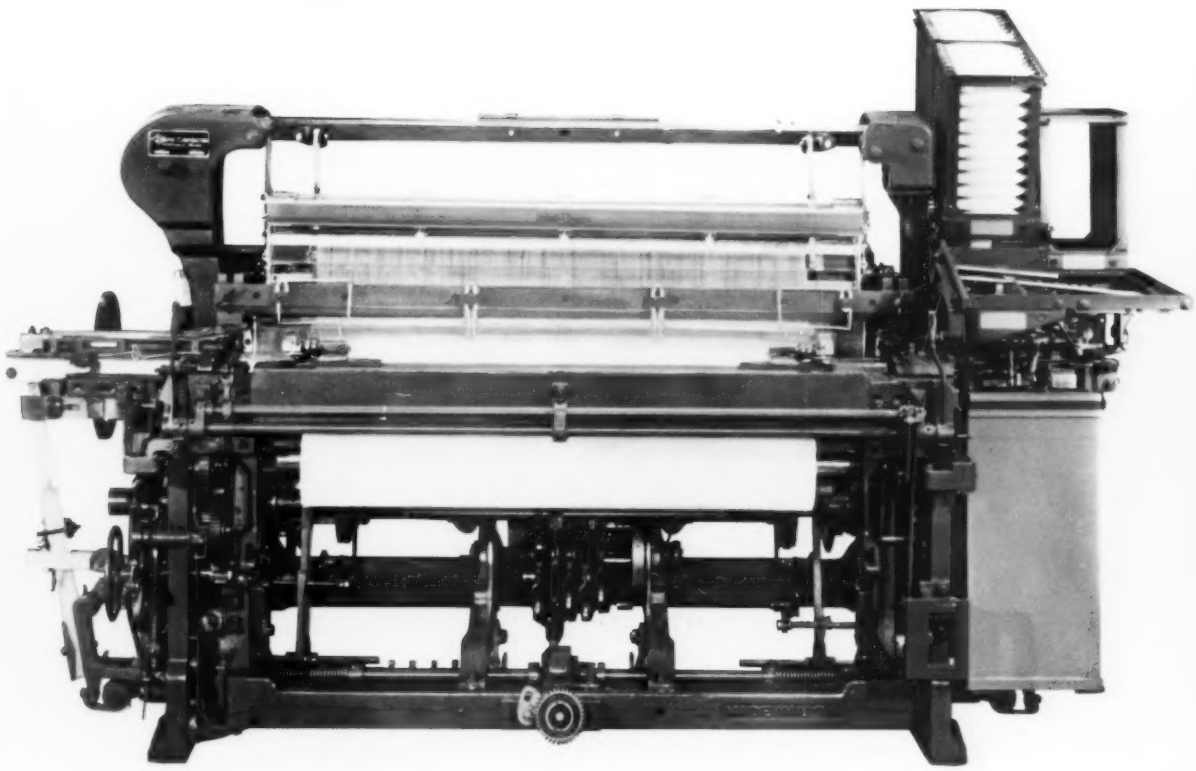
For more information on new techniques in Opening, Drawing, Combing, Spinning, Winding, Weaving, Printing, Finishing, etc. by one of the world's oldest (135 *years*), *largest and most reliable manufacturers, contact nearest Agent or write to:*

Société Alsacienne de Constructions Mécaniques
Mulhouse, France



X-3





Increased productivity and versatility equal more profit.

DRAPER CORPORATION

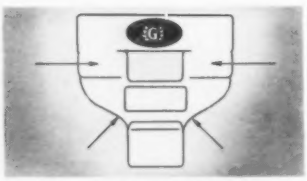
HOPEDALE, MASS. • ATLANTA, GA. • GREENSBORO, N.C. • SPARTANBURG, S.C.

FABULOUS!

IMPROVED GARLAND *HI-FAX® 1900 HIGH MOLECULAR WEIGHT POLYETHYLENE PICKER

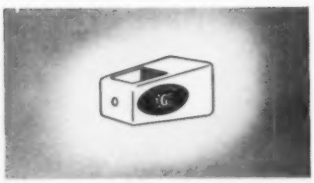
AMAZING
LONGER LIFE

AMAZING
LOWER PRICES



SUPER REINFORCEMENT

IMPROVED BUSHING
Screw-in or Press-in



SERRATED LOOP

*Hi-FAX® 1900 . . . high Molecular Weight Polyethylene, the miraculous shock and abrasion resistant plastic, as molded by the exclusive Garland process, creates an amazing miracle-performing loom picker.

Garland, pioneer in picker research, has perfected this sensational picker through use of this material. Improved bushings, reinforcement at four vital points for mill-proven quality, mill-proven longer life.

You'd expect the price to be higher! It isn't. It's lower! Mill-men who know, choose the best. They stick with Garland's "American Made" plastic picker.

Proof-of-the-Picker is in the using. Try Garland for undeniable super performance. **GET FULL DETAILS TODAY.**

Hercules Powder Company Trademark

SOUTHERN REPRESENTATIVES

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P.O. Box 10828
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P.O. Box 3382-Sta. A
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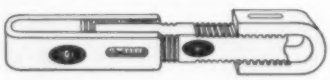
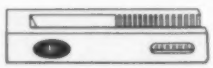
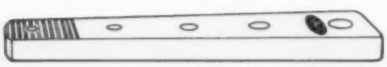
OTHER GARLAND PRODUCTS







Garland . . . known for dependable
PLASTIC SWEEPSTICKS, MOTOR PINION GEARS, LOOM ACCESSORIES; ALSO, LUG STRAPS AND CONNECTING LINKS, LEATHER SPECIALTIES, SPONGE LEATHER BUNTERS.

Garland MANUFACTURING CO.

50 WATER STREET • SACO, MAINE

New Xenon Arc Fade-Ometer and Weather-Ometer

A new light source, the Xenon Arc, with accompanying control equipment, is now available in the Weather-Ometer and Fade-Ometer.

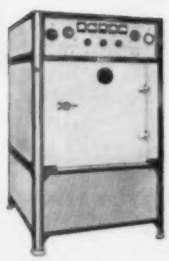
With a spectral energy distribution very close to that of natural sunlight, the Xenon lamp is ideal for use as the source of radiation in accelerated fading and weathering machines. The lamp employed in these new machines is a 6000 watt water cooled Xenon lamp which provides sufficient intensity to permit simultaneous exposure of a large number of samples of a generous size. The specimen rack of these machines has a diameter of 37¾" and will accommodate up to 54 specimens 3" x 9" in size.

These new Xenon arc machines, like the carbon arc type of Weather-Ometer, provide automatic control of black panel temperature, cycles, etc. and are also available with automatic control of humidity during both the light-on and light-off periods of the cycle.

This Xenon lamp is also available with constant wattage transformers which insure a uniform radiation intensity regardless of variations in line voltage. Control equipment is provided which permits increasing the wattage of the lamp to compensate for the progressive loss of intensity as the lamp ages. These lamps have an anticipated useful life of 2000 hours and are of the replaceable burner type so that only the burner tube and not the complete lamp is replaced.

These new Xenon Arc Fade-Ometers and Weather-Ometers do not replace our present line of carbon arc machines but are offered as a companion line of machines for those who desire the improved spectral distribution.

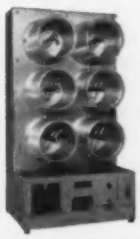
Complete information with prices available upon request



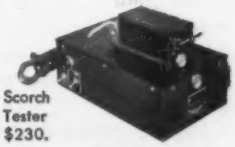
Weather-Ometer®
$2755 up.

Fade-Ometer®
$1350 up.
Complete with supplies.

Launder-Ometer®
$875 complete with
accessories and supplies.



Random Tumble
Pilling Tester
$430 to $735.



Scorch
Tester
$230.

Accelerotor®
$485.

PERSPIRATION TESTER—A.A.T.C.C. CROCKMETER—LABORATORY WRINGER

ATLAS ELECTRIC DEVICES CO., 4114 N. Ravenswood Ave., Chicago 13, Illinois, U.S.A.

SPECIAL doff boxes transport spinning bobbins directly to the spoolers. Here, the boxes replace old spooler troughs.

Trimming Those High Yarn Costs

This mill is solving yarn cost problems with modernization—new and refurbished machinery, stepped-up quality control and preventive maintenance. Here's the company's program—and the payoff.

CUT YARN COSTS. That was the word that went out in this integrated mill. What tack to take? Swift Mfg. Co., Columbus, Ga., the company in question, decided on a three-pronged plan:

- Install new machinery where it would do the most good.
- Refurbish and rearrange old machinery.
- Step up quality control and preventive maintenance.

Swift's payoff: improved quality, higher efficiency, and lower costs—all the way 'round.

Listen to C. H. Williams, president of the company:

"We're a complex operation. Our end products are indigo-dyed and vat-dyed denims, seat-cover fabrics, automotive upholstery, ticking, mesh bag materials, and specialties. We run both natural and stock-dyed cottons and produce novelty yarns from man-made fibers.

"With hundreds of blends, colors, and combinations of fibers, we have to reduce costs wherever we can.

"Installation of new machinery and methods has permitted us to improve our products and at the same time reduce our labor force—by normal attrition. We've made most improvements to date at carding, spinning, winding, spooling, and slashing."

That statement sums up the reasons why Swift made the changes described on these pages. And there's no shadow of doubt the improvements are paying off in a big way. Take spinning, for example. Improvements in this department alone are saving the mill a tidy sum of money—just in the manufacture of warp yarn. Quality is 'way up. And other departments are benefiting from the better-running work.

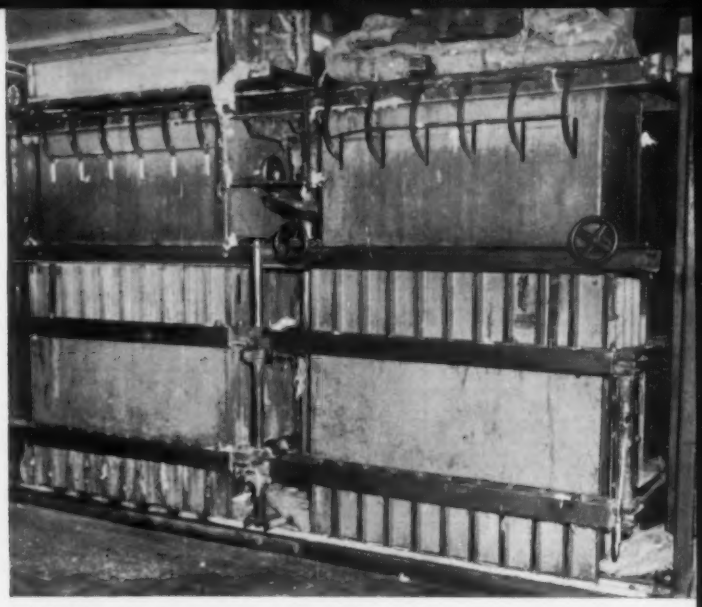
Improvements made in the spinning department include changing over 94 warp frames to Cole Phantom drafting, new roll and roll stands, open creels, and Parks-Cramer frame and floor cleaners.

SPECIFICS CITED

Want to know more about specific savings? Here's what George Bass, head of Swift's standards department, says:

"When we installed the new drafting system, break factor jumped 12%—from 1,855 to 2,088. This improvement set off a chain reaction. The changes make it possible

BLENDING—Ten new Fibermeters like this one blend half the cotton processed. Old hoppers with change-overs process the rest.



BALING—These two presses prepare bales of clean cotton for eventual movement to the dyehouse, where the cotton is raw-stock dyed.

ROVING—Twenty new FS2 roving frames turn out 13½x7 packages of 0.50- and 0.70-hk. roving. Swift makes finer hanks on 16 older units.

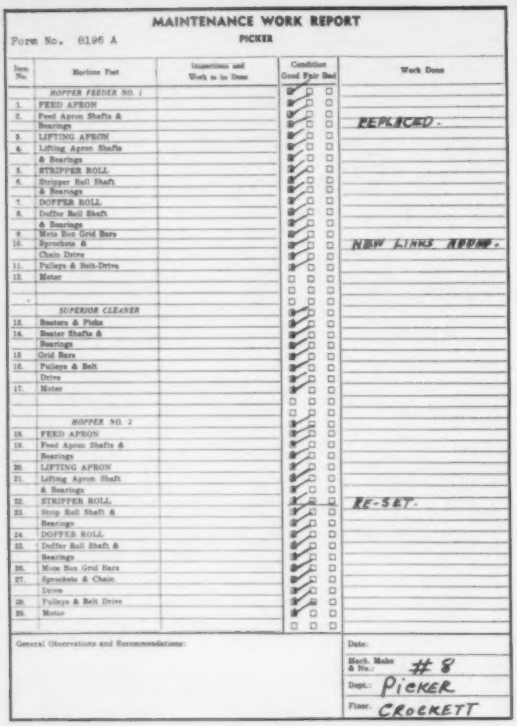
DRAWING—This new unit produces a 60-grain sliver at 425 fpm. Here, Industrial Engineer Pete Powell (right) checks the unit.

to make a coarser hank roving—0.50 instead of 0.70—in the card room. This difference amounts to $37,064 per year in direct-labor savings at roving.

"Ends down have dropped more than 18%, and cleaning time is greatly reduced. With these improvements we have been able to reassign spinners' work and thus save more than $31,000 per year."

George Bass cites other benefits: Yarn coefficient of variation has dropped from 21.6 to 17.5%. Fewer ends down produce less waste at spinning and better running conditions at the spooler. Loom efficiency is up.

"But spinning is only part of the story," he adds. "Opening-room equipment has been replaced with James Hunter Fibermeters. Cards have been rebuilt and equipped with 18x42 Saco-Lowell boilers and cans. New Versamatic drawing and FS2 13½x7 roving have been installed. And, finally, we have added more floor space so machinery can be arranged in a more efficient way than it was previously."



MAINTENANCE WORK REPORT

Form No. 6196 A

PICKER

Item No.	Machine Part	Inspections and Work to be Done	Condition Good	Fair	Bad	Work Done
	HOPPER FEEDER NO. 1					
1.	FEED APRON		✓			
2.	Feed Apron Shafts & Bearings		✓			REPLACED.
3.	LIFTING APRON		✓			
4.	Lifting Apron Shafts & Bearings		✓			
5.	STRIPPER ROLL		✓			
6.	Stripper Roll Shaft & Bearings		✓			
7.	DOFFER ROLL		✓			
8.	Duffer Roll Shaft & Bearings		✓			
9.	Mote Box Grid Bars		✓			NEW LINKS ADDED.
10.	Sprockets & Chain Drive		✓			
11.	Pulleys & Belt-Drive		✓			
12.	Motor		✓			
	SUPERIOR CLEANER					
13.	Beaters & Picks		✓			
14.	Beater Shafts & Bearings		✓			
15.	Grid Bars		✓			
16.	Pulleys & Belt Drive		✓			
17.	Motor		✓			
	HOPPER NO. 2					
18.	FEED APRON		✓			
19.	Feed Apron Shafts & Bearings		✓			
20.	LIFTING APRON		✓			
21.	Lifting Apron Shaft & Bearings		✓			
22.	STRIPPER ROLL		✓			RE-SET.
23.	Strip Roll Shaft & Bearings		✓			
24.	DOFFER ROLL		✓			
25.	Duffer Roll Shaft & Bearings		✓			
26.	Mote Box Grid Bars		✓			
27.	Sprockets & Chain Drive		✓			
28.	Pulleys & Belt Drive		✓			
29.	Motor		✓			

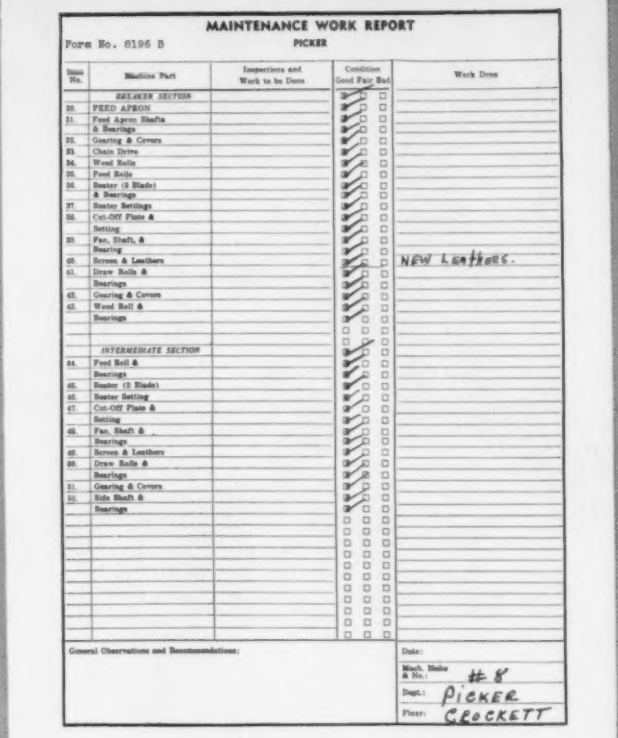
General Observations and Recommendations:

Date:

Mach. Make & No.: #8

Dept.: PICKER

Fixer: CROCKETT



MAINTENANCE WORK REPORT

Form No. 6196 B

PICKER

Item No.	Machine Part	Inspections and Work to be Done	Condition Good	Fair	Bad	Work Done
	BREAKER SECTION					
30.	FEED APRON		✓			
31.	Feed Apron Shafts & Bearings		✓			
32.	Gearing & Covers		✓			
33.	Chain Drive		✓			
34.	Wood Rolls		✓			
35.	Feed Rolls		✓			
36.	Beater (3 Blade) & Bearings		✓			
37.	Beater Settings		✓			
38.	Cut-Off Plate & Setting		✓			
39.	Fan, Shaft, & Bearing		✓			
40.	Screen & Leathers		✓			NEW LEATHERS.
41.	Draw Rolls & Bearings		✓			
42.	Gearing & Covers		✓			
43.	Weed Roll & Bearings		✓			
	INTERMEDIATE SECTION					
44.	Feed Roll & Bearings		✓			
45.	Beater (2 Blade)		✓			
46.	Beater Setting		✓			
47.	Cut-Off Plate & Setting		✓			
48.	Fan, Shaft & Bearings		✓			
49.	Screen & Leathers		✓			
50.	Draw Rolls & Bearings		✓			
51.	Gearing & Covers		✓			
52.	Side Shaft & Bearings		✓			

General Observations and Recommendations:

Date:

Mach. Make & No.: #8

Dept.: PICKER

Fixer: CROCKETT

CHECKLISTS covering 78 items for pickers illustrate how seriously the firm regards its preventive maintenance program.

TRIMMING YARN COSTS . . . *Begins on page 42*

FACTS ON PROCESSING

Swift spins more than 400,000 pounds of 4.5s to 16s warp (130 to 37 Tex) and 3.5s to 16s (170 to 37 Tex) filling each week. Here's how the company processes raw stock into yarn:

Opening and picking—Swift uses cotton of $1\frac{5}{16}$-in. Middling and Low Middling with a 3.6- to 3.8-minimum Micronaire value. It lays down 80 bales of cotton and feeds from all of them.

Swift preblends cotton at opening and rebales about half of it for movement to the dyehouse, where it is rawstock dyed and returned to the pickers.

The company blends on two lines of James Hunter Fibermeters. Each line has 10 hoppers. One line consists of brand new blenders. The second line consists of 10 hoppers equipped with Fibermeter changeovers. All machines drop 12-oz. cotton tufts about six times a minute for a total production of about 5,000 pounds per hour. They run continuously except for a 30-min. cleaning interval for all the shifts.

Each line of Fibermeters is synchronized (to regulate feed) with a line of cleaners made up of machines in this order: Saco-Lowell Nos. 11, 12, 11, 12, and 11, plus one Superior cleaner. Swift blows the white cotton from the No. 1 cleaning line directly to the pickers. The No. 2 line supplies cotton for rebaling and dyeing.

Dyed stock and some white cotton move by hand to five three-beater pickers. Three cleaners designed to open and fluff the matted material from the dyehouse precede these pickers. The company blows the white cotton directly into five other picker hoppers via a rake distributor. Here it is sprayed with Disco—a rust-preventing additive—to keep down fly and dust.

Each of these machines has a high rate of production — 480 pounds per hour. Every 7 minutes it makes a 17-oz., 59-lb. lap with a tolerance of $\pm\frac{1}{2}$ pound. Swift is experimenting with high-compression laps, and soon expects to increase lap weight by 20 pounds.

Manpower required to run the 10 machines: two picker tenders, one hopper feeder, and one fixer per shift.

Carding — Swift operates 259 cards rebuilt and equipped with 18x 42 Saco-Lowell coilers and cans to match. The cards are located in two different rooms—98 in No. 1 room and 161 in No. 2 room. They are separated primarily to keep the dyed cotton from contaminating the natural cotton.

The company uses standard settings for white cotton. It makes minor settings every 13 days, major settings every 26 days. Grinding interval is 13 days.

Card-room improvements have reduced card-room personnel 33%. Work assignment is now 49 cards per operator. And quality is up. For example, CV (Coefficient of Variation) has dropped from 4.66 to 3.85%. And fewer neps per grain are apparent in the sliver.

Drawing—In the No. 1 card room, 4-roll metallic drawing has been replaced with eight new Versamatic frames that run 425 fpm.

MAINTENANCE WORK REPORT
PICKER

Form No. 8196 C

Item No.	Machine Part	Inspections and Work to be Done	Condition Good Fair Bad	Work Done
	FINISHER SECTION			
52.	Lattice Apron			
54.	Evener Rolls			
55.	Fringe Roll			
56.	Feed Rolls			REPLACED -
57.	Beater (Kirschner)			
58.	Beater Shaft			
59.	Beater Bearings			
60.	Beater Setting			
61.	Grid Bars			
62.	Cut-Off Plate & Setting			
63.	Fan, Shaft & Bearings			
64.	Screen			
65.	LEATHERS			
66.	Dampers			
67.	Belt and Chain Drives			
68.	Gearing & Covers			
69.	Evener Pedals			
70.	Evener Cones			
71.	Blending Reserve			
72.	Knock-Off Gearing			
73.	Lap Roll Drive Gear			
74.	Calender Roll & Bear.			
75.	Calender Roll Gears			
76.	Lap Roll & Bearings			
77.	Lagger Heads			
78.	Pneumatic Control			

General Observations and Recommendations:

Date:
Mach. Make & No.: #8
Dept.: PICKER
Fixer: CROCKETT

LOOM BEAM TICKET

FABRIC: 37½" DENIM — M O NO:
SUGG NO: C-60282 — PATTERN: #1 — YDS IN SET: 9450 — WOVEN YARDS: 8280 — DATE ISSUED:
LOOM TYPE: C CAMS — LOOM BEAMS IN SET: 10 — BEAM NO. — WARP COUNT: 9 — SLASH W/E:
LOOM NO — DATE — TOP 1 — TOP 2 — BOT — SELV COUNT: 9 — LOOM W/E
FILLING YARN
BOX 1: 2760 lbs. 7's WHITE
BOX 2
BOX 3
BOX 4
REED NO: 17.75 — WIDTH IN REED: 42.03 — TOTAL HARN: 8 — SELV HARN
DID: 4 HAR. STR. & TAPE 2985 — BODY ENDS
CD: 3/1 R H TWILL(SELV) — BODY: 4
BOX CHAIN — ENDS/DENT SELV: 4
PPI: 44 — WEAVE
SELVAGE MARKER: 9'8 — WEAVE — YARD ROLLS
SLASHER NO. — SLASHED BY — DATE
SLASHED YDS ON BEAM — SLASHED CUTS ON BEAM — SLASHED YDS PER CUT
DRAWING - IN — ENDS
DRAWING-IN HAND
THREAD HANDER
DRAWING-IN HAND
THREAD HANDER
FIXER — DATE
SMASH HAND — DATE
PASSED BY — DATE

WARP HANGER STUB — LOOM NO — DATE — M O NO.
SUGGESTION: C-60282 — PATTERN: #1 — BEAM NO. — TIED AT LOOM — DRAWN — NO HARNESS: 8
FIXER

DRAWING - IN STUB TO STANDARDS — FABRIC: 37½" DENIM — M O NO
SUGGESTION: C-60282 — PATTERN: #1 — TOTAL ENDS: 2985 — NO OF HARNESS: 8 — DRAWN TIED AT LOOM STAY TIE
DATE — APPROVED — ENDS
DRAWING-IN HAND
THREAD HANDER
DRAWING-IN HAND
THREAD HANDER

DRAWING - IN STUB TO PRODUCTION — FABRIC: 37½" DENIM — M O NO
SUGGESTION: C-60282 — PATTERN: #1 — BEAM NO. — DATE — DRAWN TIED AT LOOM STAY TIE

SUGGESTION: C-60282 — PATTERN: #1 — M O NO
LOOM TYPE: C CAMS — NO OF ENDS: 2985 — LOOM W/E
DAYS TO WEAVE — WARP RUN OUT DATE — TOP — TOP 2 — BOT
SLASHED YDS ON BEAM — DATE SLASHED — BEAM NO.
LOOM NO — DATE — TIME — A M P M

FORM NO 5186 — WARP INVENTORY TICKET — WERNERTEX

TICKET for loom beams is one of the many forms the company uses for its production-control program.

Swift uses only one process here. These machines, eight ends up, produce a 60-grain sliver and put 38 pounds into 16x42 cans. Parks-Cramer overhead cleaners have eliminated a good deal of manual cleaning and keep the work running smoothly. **Quality is up, CV down—from 6.23 to 4.50%. Now one operator runs the drawing department, compared with three formerly required.**

Twelve new drawing frames are operating under similar conditions in the No. 2 card room. Here the number of operators has been cut from seven to three. Quality and production from these frames are comparable with that from the frames in the No. 1 card room.

Roving—Swift recently installed 20 new Saco-Lowell 13½x7 FS2 roving frames (96 spindles each) to manufacture 0.50- and 0.70-hk. roving. Altogether, the mill operates 36 roving frames, including sixteen 10x5 and 8x4 machines. It makes finer hanks—from 1 to 1.75—on the smaller machines. **Roving made on the new frames has a CV of**

7.05%, compared with 9.8% for the old frames that were replaced.

Spinning—Swift operates about 27,000 warp and 14,600 filling spindles. All but 24 of the 118 warp frames have been modernized. Each of these frames has from 148 to 252 spindles, 2¼- to 3½-in. rings, and 2¾- to 5-in. gage.

To spin 9s (65 Tex)—an average number—from 0.50-hk. roving, Swift uses a spindle speed of 7,282 rpm., front-roll speed 165 rpm., twist multiplier 4.72, draft 18, traverse 9½ inches, package size 11 ounces, and CV 17.5%.

To spin 7s filling from 0.50-hk. roving, it uses a spindle speed of 5,150 rpm., front-roll speed 179 rpm., twist multiplier 3.47, draft 14, and package size 1.6 ounces.

Spooling — No recent changes have been made here except for removal of storage troughs and substitution of special doff boxes. In spooling, seven operators run two 306 CC Barber-Colman machines. The company completely modernized this department three years ago.

CONTROLLING QUALITY

George Bass, head of the standards department, controls the activities of quality control, industrial engineering, and the laboratory.

Quality control is especially important at Swift. It begins with raw cotton, which is tested in Swift's own laboratory. Here technicians regularly check grade, staple, fineness, strength, and dye index to see if the cotton measures up to control specifications.

For the first check on every bale of cotton, Swift uses the Speedar fineness tester, which is three or four times as fast as the Micronaire. Any cotton that doesn't come up to standard on the Speedar is rechecked on the Micronaire.

The company has a wide variety of instruments for testing in the central quality-control laboratory. Among these are the Uster evenness tester, Saco-Lowell lap tester, Scott strength tester, sizing scales for weighing skeins, Brabender oven, pH meter, Fade-Ometer, Launder-Ometer, washing machine, Stoll & Wezenbech wear testers, and a device for counting neps per grain of sliver. Swift maintains standard laboratory conditions—70 F., 65% r.h.—at all times.

Quality-control personnel make many checks on manufacturing operations at prescribed intervals. For example, they evaluate settings on cleaners and blenders every 12 weeks. Other checking schedules at Swift are: percentage of cotton fed, every week; lap weights, every day; lap variation, every week; picker settings, every 10 weeks; card-sliver weight, every 5 weeks; fly wastes and flat strips, every 10 weeks; card speeds, every 6 weeks; idle spindles, every week; roll settings, every 12 weeks; and ends down, every 2 weeks.

Industrial-engineering personnel thoroughly inspect all machines for every possible mechanical defect. The company has instruments to help run down defective gearing, worn rolls, and other causes of unevenness patterns.

Service employees follow formal checklists closely, fill them out, and turn them over to the department head. Regular departmental maintenance men do the repair work. Swift regards preventive maintenance seriously enough to have checklists covering 78 items for pickers alone (see page 44).

In addition to keeping close check on maintenance, industrial engineers are constantly studying new equipment, making plant layouts, evaluating work assignments, improving material-handling methods, checking on costs, and making time studies.

CONTROLLING PRODUCTION

Another big job at Swift is production control of the many varied yarn and loom styles. People in this section follow each order as it progresses through the mill and make sure that the fabrics reach the customer on the due date. At the same time, they make projections to be sure that machinery will become available on schedule to process orders not yet in the works. The most difficult part of the job: how to work in unexpected orders that must be filled immediately. All of this takes a lot of planning and paperwork by production control people.

HANDLING MATERIAL

Material handling is somewhat of a problem at Swift because of the four-story construction of its main building. Carding is on the first and second floors, spinning is on the third floor, and winding, spooling, warping, and slashing are on the fourth floor. There are two card rooms and two spinning rooms to complicate the matter further.

Swift has studied all kinds of conveyor systems, but none seems to offer any improvement over the methods now in use. Chief objection to mechanical conveyors: They can't sort out the numerous blends and colors that have to be delivered to specified machines.

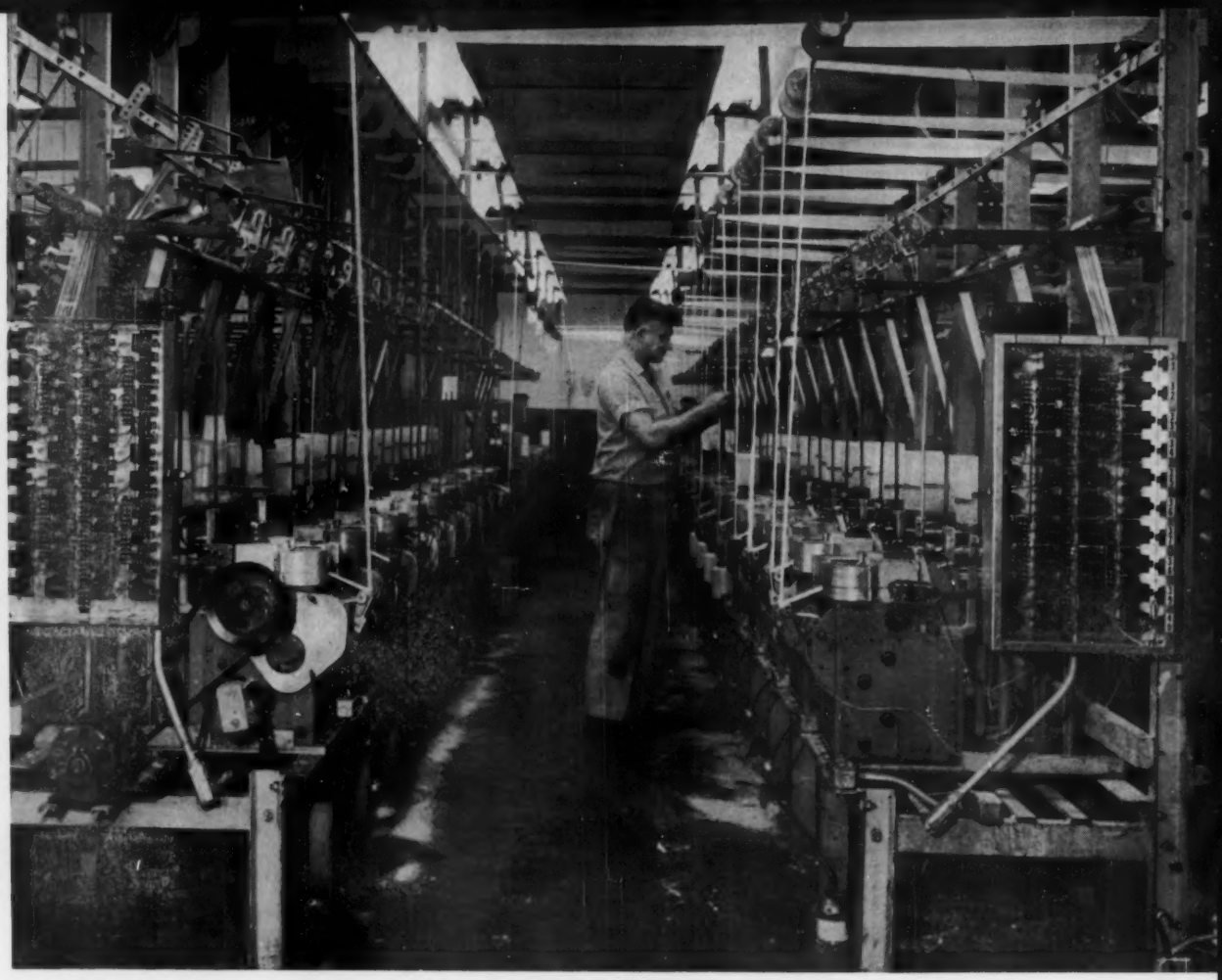
To simplify the problem, Swift rearranged its carding and spinning machinery. Production in those two departments is now on a straight-line basis. Previously, cards were in the middle of the room, with drawing and roving at either end. Warp spinning now is all in one location. Filling spinning is in a second room. Construction of a new addition with 15,000 square feet of space on each floor made these changes possible.

Process flow—A Hyster lift truck hauls cotton bales from the warehouse to the opening room. After the cotton has been cleaned, about half of the stock is rebaled and trucked to the dyehouse. The other portion is blown through pneumatic pipes directly to the pickers on the first floor.

Card tenders from the first-floor card room pick up their own laps at the pickers and hand-truck them to the cards. Laps destined for the second floor go up on a small elevator. On arrival, they're picked up and placed on the cards.

The company packs roving bobbins in new Fisher spring-bottom boxes (24 in a box) and hauls them by elevator to the third-floor spinning room. In this room spinners creel the bobbins directly onto the spinning frames. This movement of material requires two roving haulers per shift.

Spinning bobbins are doffed into special Fisher boxes and pushed alongside the spoolers. Here they serve for yarn storage in place of old troughs now removed.



EACH PANEL of electric counters shows picks for each of 10 looms on each of three shifts, plus total picks per loom.

Newest Way to Count Picks

THE PANEL in the photo above contains 40 electrical pick counters. These counters show number of picks produced by each loom in a battery of 10 Libby high-speed (900 ppm.) shuttleless looms that make narrow fabrics for Frankoweave, Inc., Philadelphia.

Thirty of the counters (three per loom) count picks per shift for each loom in the battery of 10 looms. Ten of them (one per loom) show total picks for each loom in the battery. There are seven other panels like this one—one panel for each of seven other 10-loom batteries. That means a total of 320 counters for a total of 80 looms.

Counting is done at the loom. On each loom is an electric contactor (made by Durant Manufacturing Co.) mounted on a Frankoweave-made bracket and connected to the loom camshaft with a salvaged universal joint. The contactor senses each revolution of the camshaft and sends an electric impulse to the appropriate shift counter for the loom involved and to the loom totalizer for that loom. The loom operator selects the shift counter to be used by turning an ordinary three-position loom switch adapted (by Frankoweave people) for this purpose and mounted on top of the panel at the end of the row of looms.

Benefits? Here they are:

- Picks per loom per shift are found quickly and easily. No more subtracting total at end of previous shift from total at end of current shift to get net for current shift. Counters are run back to zero at start of each day's work.
- Same for weekly totals, which are read off the totalizers.
- Gathering data on picks produced now takes only 30% as much time —about half an hour per day— as it used to take.
- Easy reading is the result of moving pick counters away from looms, where they gathered dust, lint, oil, and other splashed liquids and had to be wiped clean before the count became visible. Counters in this new setup are remote from the loom and are enclosed in a panel with a glass door.
- Competition between shifts is lively and production stays high because the production record of each shift is clearly visible to all.

FORE! Here President J. H. Bradley and Vice President R. Boyd mix some business with pleasure in dreaming up new color possibilities to boost sales of their "Cocktail Golf" rug—already a big seller for Carter.

CUSTOM carpeting is becoming the byword in sales importance. Here Superintendent A. R. McQuiddy and Vice President Boyd study two carpets made to fit irregularly shaped rooms.

Imagineering A Brand-New Company Image

This company has taken a half century of good customer relations, has added a new company image, and now is rocketing in the tufting business. Behind its new products, new designs, and new materials lies new thinking.

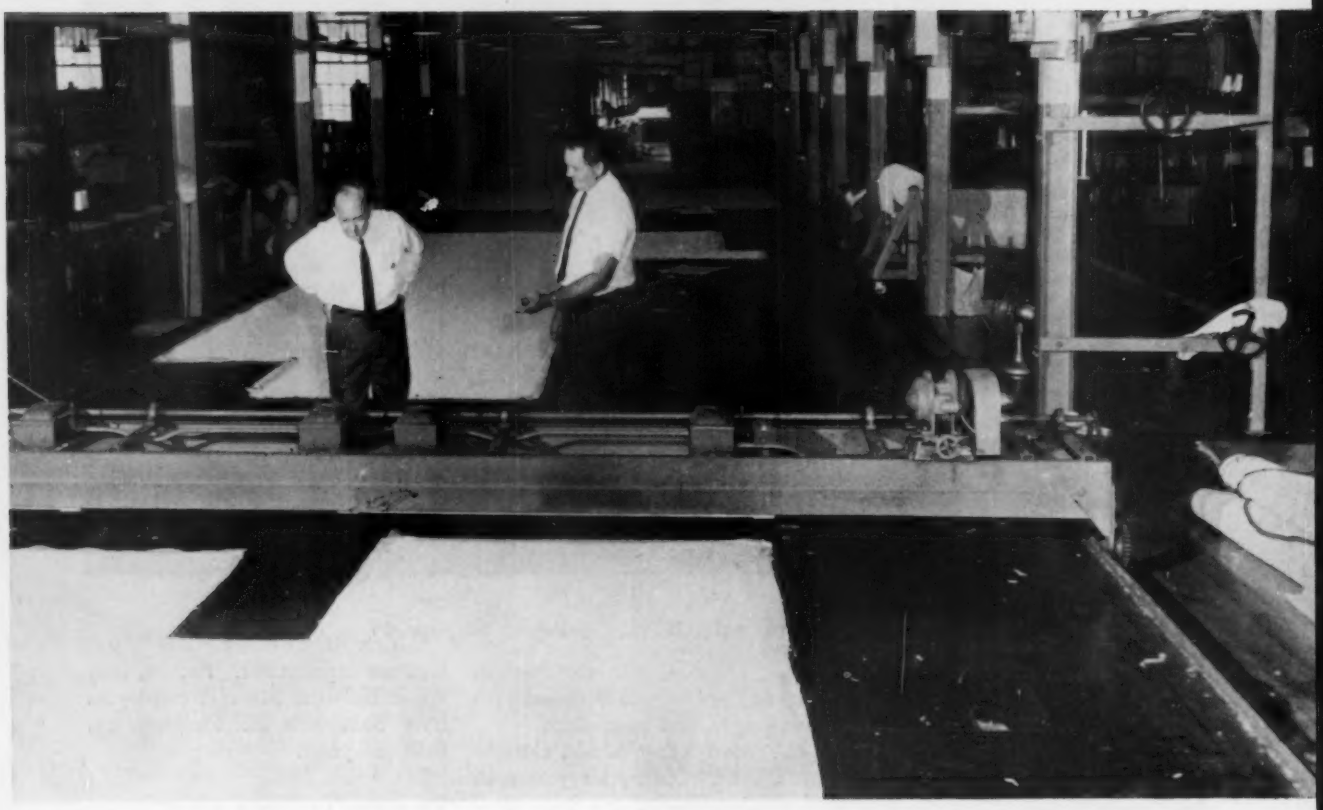
THIS is one textile company that's moving fast in today's bustling tufting business. Its secret: emphasis on the new and unusual.

Design is the big word at Carter Bros., Inc., Chattanooga, Tenn. And it shows up not only in custom carpet designs, but also in fiber blends and backings as well. Carter runs a complete range of materials from the smallest bath set and area rugs to custom-made carpeting up to 45 feet wide.

FIRST, THE UNUSUAL

Carter says its sales have skyrocketed in rounds and ovals—shapes that usually give the most customer trouble. Now, the company is tackling irregular patterns —shapes that inspire new creations.

Carter management men are always on the prowl for new ideas in design. They dream up lots of new ideas themselves. And they pick up others anywhere and everywhere. For example, one hot sales pattern



at the moment, "Parquet Floor Mats," featured in Marshall Field & Co.'s spring catalog, is the idea of a Carter salesman. And Allied Chemical Co. helped out in developing "Hopscotch" and "Marbles" —two designs for children's rooms.

A big Carter selling tool: Customer gets his own choice of colors. For instance, Carter has jumped into the yarn-dyed texturized Caprolan nylon field in bath, area, and accent rugs and in wall-to-wall carpeting. This yarn comes in 31 basic colors. (And its "Cocktail Golf" design has proved a bonanza.)

There's no worry at Carter about building up obsolete stock: Each rug and carpet is a custom order. There's no stock on hand.

SECOND, THE NEW

Carter is probably a front runner with many of its methods and materials. Take its backing material, for instance. The company is using nonwoven fabrics for an improved product. This material is made to Carter specifications on a needle loom with thermoplastic fibers. The fabric is heat set to bond the fibers together. Result: a stabilized rug that holds its shape washing after washing. You can't tear it, and you can't distort it.

This textile mill doesn't stop with a few fibers or a few designs. It branches out all over. For instance, in August it gave a big push to 100% Creslan in area rugs. This fiber appears to have all of the advantages of wool, plus some advantages of its own, such as easy care.

Carter goes into fiber mixtures, too. For lots of rugs it uses a viscose (80%) and nylon (20%) blend in 20 stock colors of yarn-dyed fibers. The company also keeps a 14-ply 100% viscose yarn in 49 colors. And it stocks spun nylon yarn in 14 colors.

Carter is also giving some new uses and designs to the old basic fibers—cotton and wool. It has 145 basic colors in cotton yarn. Wool yarns are part of a custom wool-rug operation—the company keeps no colors in stock. It buys these yarns in skeins dyed to customer's specifications in any color, then rewinds them on Foster winders.

BUILDING THE IMAGE

How did Carter get into this elaborate new program? The original company was formed in 1913 by the two Carter brothers and was one of the first half-dozen companies in tufting.

P. L. Carter was the sales dynamo, the outside man. His business integrity and his personal sales ability were so substantial that eight customers have been on Carter's books continuously for almost half a century. A. J. Carter was the production man, the inside man. Practically every machine in the mill today has some attachment or some improvement he designed. And today, Carter has 150 modern

CREELING is handled on a portable machine. Nylon tubing holds 66 cones of yarn. This 30-ft wide carpet is being made on a yardage tufting machine with 11¾-in. passes.

IMAGINEERING A NEW COMPANY IMAGE . . . *Begins on page 48*

tufting machines in the plant. Many of these machines were manufactured by Broad Street Machine Co.

A little more than a year ago (May 1960), P. L. Carter, the surviving brother, retired and the mill was sold to three men: J. H. Bradley, the new president; Robert W. Boyd, vice president; and Rowell Carter, vice president.

KEEPING THE IMAGE

Bradley has been with Carter almost from the beginning. He knows every machine in the mill, including all of the idiosyncrasies of old No. 129. And he knows all 140 employees by their first names.

His eager, probing mind is alert to the 267 stock colors of yarn in the mill and every possible type of pattern. First thing in the morning, you're likely to find Bradley with a machine operator telling her to change the color of aqua, mocha, and black to rose, lilac, and gold. Or he'll have a completely new design in mind.

Bob Boyd came into the Carter organization when the three men bought the company. But he knew the firm well. As sales representative for Leon-Ferenbach, Inc., he had sold the company its first man-made-fiber yarn. He knew texturized Caprolan nylon and its tremendous possibilities. Fact is, Bob Boyd is almost Mr. Fiber himself. He got his start with Du Pont in 1940 and has been in fiber and yarn development and sales since.

Mr. Boyd today is Mr. Outside with Carter. During his year with the organization he has built up a strong sales force, including close liaison between the mill and the New York sales office. Today there are 20 active, well-trained salesmen in seven offices scattered throughout the country.

Rowell Carter is liaison man between the mill and the customer. He pushes orders through to completion, keeps customers happy. He's also purchasing agent—buys all yarn, carpet backing, chemicals.

JUST ONE HITCH

Manufacturing new fabrics has not been all easy sailing for the Carter people. The biggest problem: production control. But the plant has licked this one and all others with one exception—identification of lots in laundering. Carter now uses fast-color identification markers put in at the time the rug backing is cut. There are no mix-ups with this new system, but it requires a lot of work. Electronic labeling with one of the newest machines may be the answer.

Quality is no problem at this textile mill. Expert machinists design many of the machines used at Carter, and all tufting-machine operators are experienced. Fact is, only six of the total 140 mill employees have been with the company less than five years.

TICKETS ALL THE WAY

The mill receives an order for, say, 50 area rugs. Immediately the translation department makes up a working order on a work card. One copy of this form goes to the production-ticket section, where 50 production tickets are made, one for each rug. These tickets give all specifications including rug size, pattern, color, yarn size, and piece-rate operation.

Three of the work cards along with the 50 production tickets are sent to the mill production department. A fourth work card goes to the carpet-back-making department. As each of the 50 carpet backs is cut, one of the 50 tickets is attached to it.

Carter's tradename RetRac (Carter spelled backwards) is sewn into the back with a special machine. Identification strings that follow the rug through to shipping are also sewn in here.

The copy of the work card and carpet back, along with the 50 tickets, travels on to the work-distribution system. A worker accumulates the yarn used to make the rug and then passes everything to a tufting operator.

PUNCH TUFTING of carpets and bedspreads requires skill. Operator works from overhead graph that gives numerical order of procedures and color used for each section of the design.

INSTRUCTIONS FOR ALL

One girl puts in the first operation of tufting, and a second and third girl may also add operations as required. The work card identifies the order, and the floor lady keeps orders moving.

Standard rugs and rugs reordered often are made on piece-rate pay, special rugs on hourly pay.

After each lot of rugs is completed in the tufting room, it moves on to the laundry and finishing departments. Here, employees prepare pin tickets to show fiber and other identifications, and pass them with each lot of rugs to the shipping department. This department has already received three work cards and ships the rugs immediately.

CARVING machine is Carter's newest unit. Company marks pattern under ultraviolet lamp. Later, another lamp shows design to be cut.

WASHING is done in machines such as this, which handles rugs as big as 100 square yards. Smaller machines are 3 to 6 feet wide. Machines are assigned by color.

Here, on this page and the next 11 pages, you'll find out . . .

How Fibers React to

FACTS on the following 11 pages in tables and charts will help you understand fiber-strain problems involved in such textile operations as:

1. Yarn preparation, weaving, and knitting.
2. Dyeing and finishing.
3. Designing of wrinkle-resistant apparel fabrics.
4. Sewing and pressing of wearing apparel.

Data on these problems are increasingly crucial today in view of soaring demands for manufacturing efficiency and product quality. The findings reported here were obtained from a fiber characterization program conducted by North Carolina State College under sponsorship of E. I. du Pont de Nemours & Co., Inc.

The researchers took two generally accepted facts as their point of departure:

. . . *Fibers become strained* or distorted because of tensile forces or other external forces applied during processing such as carding, spinning, throwing, warping, weaving, knitting, dyeing, and finishing.

. . . *The amount of fiber strain* and the recovery from strain depend on external load and environmental conditions.

More specifically, the researchers were interested in the recovery properties of certain fibers and the effect of these properties on the following production and finishing processes:

1. Yarn preparation, weaving, and knitting, which can strain the fibers by subjecting them to high or erratic tensions. If fiber stresses caused by these strains are not relieved, you may be faced with problems such as crushed yarn packages, distorted beams, warp streaks, tight picks, or barre. Often you can trace these and other defects to improper tensions in an earlier stage of processing.

2. Dyeing and finishing, which occur in a hot, wet environment. Under these conditions, most fibers are more easily strained by tensile forces. Also, some fibers take a set at high temperatures. Thus, wrinkles developing during dyeing or finishing that are set into the fabric may be hard to remove.

3. Designing of wrinkle-resistant apparel fabrics, which requires a knowledge of fibers that can recover from small strains such as those encountered in the casual wrinkling of garments during wear. Wrinkle resistance also is affected by interfiber friction. Therefore, fiber friction properties of these fabrics must be known and considered.

4. Sewing and pressing of garments, which involve many practical applications of recovery properties. For example, high or erratic thread tensions during sewing can adversely affect garment seams; ability of fibers to take a set during pressing determines crease and pleat retention; and ability of fibers to recover well from wrinkles caused by wear or laundering makes wash-and-wear garments possible.

Other fabric characteristics influenced by the recovery properties of fibers include shape and form retention, bulk and thickness retention, abrasion resistance, and fabric hand.

FIVE QUESTIONS TO ASK

With the foregoing facts in mind, you should ask yourself these questions when you select fibers for a given use:

- Will the fiber encounter small or large strains in processing or in normal use of the product?
- How long will the fiber be held in a strained state before the load is removed?
- How quickly will the fiber recover its pre-existing dimensions?
- What will environmental conditions be during straining, holding, and recovery?
- Will fiber recovery be delayed or prevented by external factors, such as interfiber friction?

WHAT'S THE PROBLEM?

If you know the causes and the degree of fiber deformations, you can more easily relate recovery properties to processing problems and to end-use performance.

Processing involves external forces that strain or deform the fibers. These forces also create stresses within the fibers that tend to return them to their original form when the external forces are removed. If the deforming forces are small and are applied for a short time, the fibers usually return to their original form. But when the fibers are held in the deformed state, the internal stresses decay or diminish with time and the fibers fail to return completely to their original form.

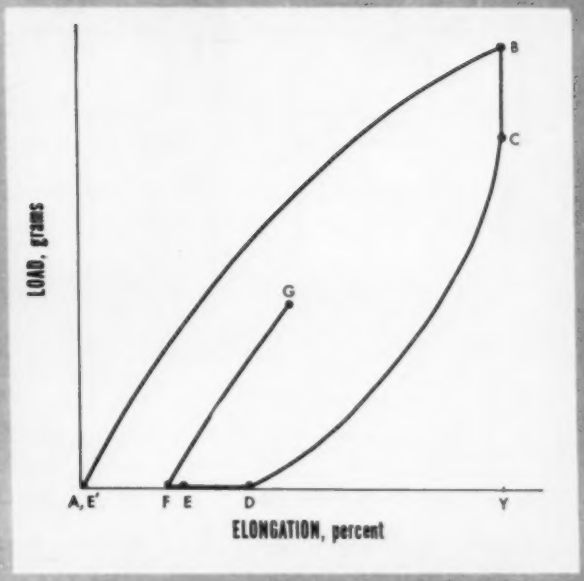
The tables and charts (pages 54 to 63) provide recovery data for Acele acetate fiber, Dacron polyester fiber, nylon 6-6, Orlon acrylic fiber, rayon, silk, and wool. The data illustrate the effect of the following factors on fiber recovery.

. . . Elongation
. . . Humidity
. . . Temperature—wet conditions
. . . Temperature—dry conditions
. . . Holding time

Essential details of the test method used in this characterization program are provided on the facing page and in the Summary of Test Conditions listed below the charts and tables of data. Additional details of the tests and further discussion of recovery properties as well as test results are published in Du Pont's Technical Information Bulletin X-142, Tensile Recovery Properties of Fibers.

Tensile Strains

Here's a chart tracing load-elongation behavior of a typical fiber during the recovery test cycle used for this fiber study



OUTLINE OF RECOVERY TEST

Point A	Start of first cycle of test. Elongation phase begins.
Curve AB	Specimen of fiber is stretched at constant rate of speed.
Point B	Specified elongation (AY) is reached. Holding phase begins.
Line BC	Specimen is held at constant length for a specified length of time. Stress decay becomes apparent.
Point C	Recovery phase begins.
Curve CD	Fiber specimen is allowed to recover at same rate of speed used for elongation phase.
Point D	Fiber under no load. Rate of fiber recovery changes.
Line DE	Recovery continues but at a progressively slower rate. Slack in specimen becomes increasingly evident as fiber clamps of tester return to their initial position.
Point E	Second cycle of test begins when elapsed time of recovery phase equals elapsed time of initial elongation phase. (For a perfectly elastic fiber, point E would be located at E', recovery would be complete, and re-elongation would begin.)
Line EF	Some recovery still taking place. Slack in specimen becomes less evident as fiber clamps of tester retrace their movements of the initial elongation phase.
Point F	Slack in specimen disappears. Recovery stops. Re-elongation of fiber begins.
Curve FG	Specimen is restretched at same constant rate of speed as before.

DEFINITION OF RECOVERY PROPERTIES

Initial stress (grams per denier) $= \dfrac{\text{load BY}}{\text{fiber denier at zero elongation}}$

Stress decay (percent) $= \dfrac{\text{load BC}}{\text{load BY}} \times 100$

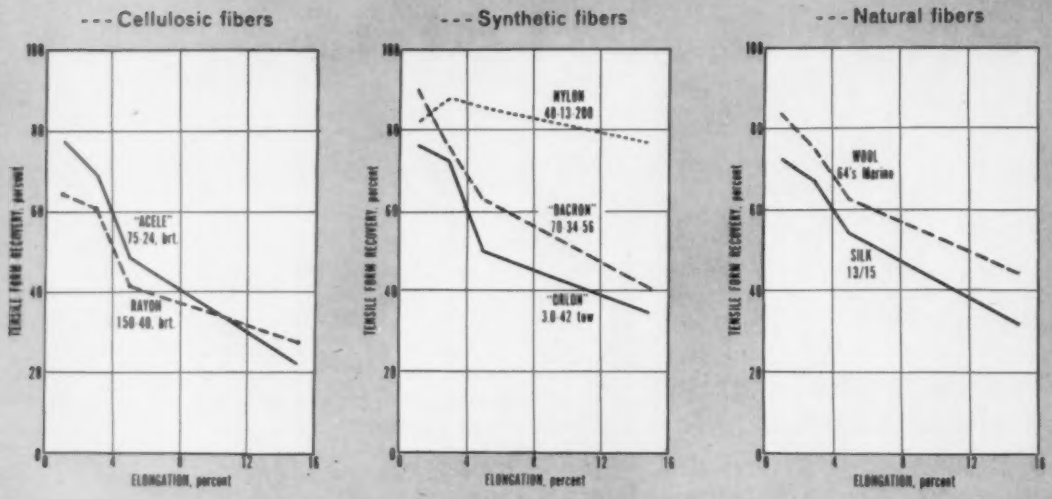
Tensile form recovery (percent) $= \dfrac{\text{recovered elongation FY}}{\text{original elongation AY}} \times 100$

Work to elongate (gram-centimeters per denier-centimeter) $= \dfrac{\text{area under elongation curve AB}}{\text{fiber denier} \times \text{length of specimen at A}}$

Work recovery (percent) $= \dfrac{\text{area under recovery curve CD}}{\text{area under elongation curve AB}} \times 100$

EFFECT OF PERCENT ELONGATION ON RECOVERY OF

Tensile Form Recovery for---



	TENSILE FORM RECOVERY* (percent) from Elongations of				STRESS DECAY (percent) at Elongations of			
	1%	3%	5%	15%	1%	3%	5%	15%
ACELE** 75-24, bright acetate yarn	78(7.6)	69(2.3)	48(4.0)	22(1.2)	23	22	27	27
DACRON** 70-34-56 polyester fiber	91(12.4)	76(3.2)	63(4.5)	40(2.7)	11	20	20	14
DACRON 220-50-51	—	88(3.4)	—	46(1.4)	—	20	—	11
DACRON 250-50-55	—	91(1.7)	—	—	—	18	—	—
DACRON 3.0-54 tow	—	81(2.7)	—	32(1.4)	—	17	—	20
DACRON 3.0-4.5"-54 staple	—	81(3.0)	—	—	—	16	—	—
Nylon 40-13-200	81(1.6)	88(0.5)	86(3.6)	77(1.2)	27	25	17	13
Nylon 840-140-300	—	89(1.1)	—	77(1.9)	—	22	—	12
Nylon 15-1-200	—	89(1.5)	—	—	—	23	—	—
Nylon 3.0-200 tow (regular)	—	82(4.8)	—	77(1.5)	—	27	—	14
Nylon 3.0-200 tow (not crimped)	—	85(2.0)	—	78(2.9)	—	24	—	13
Nylon 3.0-4.5"-200 staple	—	89(3.1)	—	—	—	21	—	—
ORLON** 3.0-42 acrylic tow	76(3.2)	73(3.0)	49(1.6)	34(1.6)	22	29	32	25
ORLON 3.0-4.5"-42 staple	—	72(1.6)	—	—	—	30	—	—
ORLON 100-10-81	84(5.6)	76(0.6)	62(3.1)	47(1.3)	23	27	23	19
Rayon 150-40, bright	64(5.8)	61(6.7)	41(6.0)	28(0.3)	33	28	28	21
Rayon 3.0, dull tow	—	53(3.3)	—	—	—	30	—	—
SUPER CORDURA** 1650-720-258 high tenacity rayon	—	63(8.8)	53(5.4)	—	—	29	23	—
Silk 13/15, Japan	73(5.7)	67(3.4)	54(4.6)	32(1.6)	26	24	19	15
Wool 64's Australian Merino, fine	84(7.8)	75(3.9)	63(6.1)	44(2.2)	9	18	21	17
Wool 54's domestic, medium	—	79(5.6)	—	46(2.1)	—	19	—	16
Wool 40's carpet, coarse	—	82(4.3)	—	48(2.3)	—	16	—	16

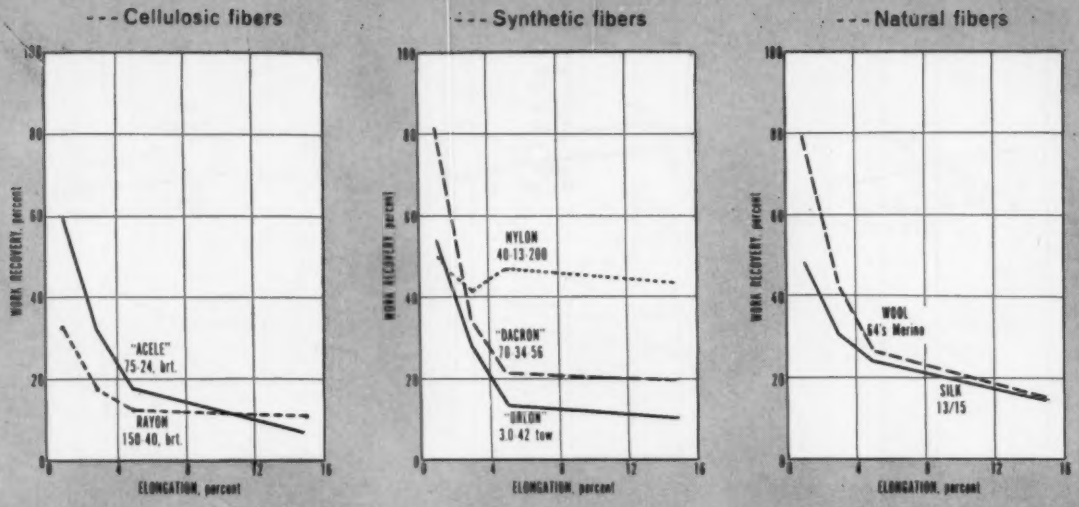
*Standard deviations shown in parentheses
**Du Pont's registered trademark

SUMMARY OF

Test specimen	Boiled-off single filaments or single fibers
Nominal test length of specimen	20" for all filament and tow samples 3" for all staple samples except as follows 2" for wool tested at 1%, 5%, and 15% elongation
Environmental conditions	70°F., 65% R.H.

SCOURED FIBERS IN AIR AT STANDARD CONDITIONS

Work Recovery for---



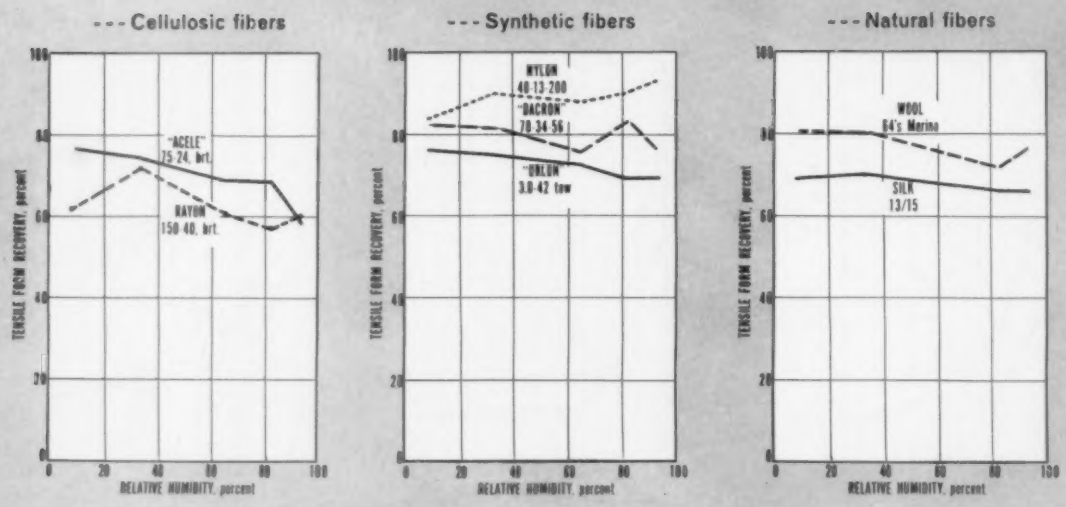
WORK RECOVERY* (percent) from Elongations of				WORK TO ELONGATE (gm. cm. per den. cm. × 100) to Elongations of				INITIAL STRESS (gm. per den.) at Elongations of			
1%	3%	5%	15%	1%	3%	5%	15%	1%	3%	5%	15%
60(15.1)	32(1.0)	17(1.0)	7(0.8)	0.3	1.2	2.5	11	0.4	0.6	0.7	1.0
81(22.2)	31(4.0)	22(2.0)	19(1.0)	0.5	2.3	5.1	22	0.8	1.1	1.4	2.7
—	39(3.1)	—	30(1.0)	—	2.9	—	32	—	1.4	—	4.9
—	43(2.3)	—	—	—	2.6	—	—	—	1.3	—	—
—	43(1.0)	—	10(0.3)	—	1.5	—	15	—	0.8	—	1.4
—	45(4.2)	—	—	—	1.6	—	—	—	0.8	—	—
51(6.1)	42(2.3)	47(3.5)	43(1.4)	0.1	1.0	1.7	17	0.2	0.5	0.6	2.5
—	40(2.7)	—	42(0.8)	—	1.1	—	28	—	0.6	—	3.2
—	40(2.3)	—	—	—	1.0	—	—	—	0.5	—	—
—	38(3.6)	—	44(2.1)	—	0.7	—	14	—	0.4	—	1.9
—	44(4.3)	—	45(1.4)	—	0.6	—	12	—	0.3	—	1.6
—	46(1.9)	—	—	—	0.6	—	—	—	0.4	—	—
55(4.9)	28(2.6)	14(1.9)	10(0.6)	0.4	1.8	3.6	15	0.6	0.9	1.0	1.4
—	28(3.4)	—	—	—	2.0	—	—	—	0.9	—	—
60(8.5)	27(1.8)	23(1.4)	23(2.5)	0.6	3.0	6.6	36	1.0	1.4	1.9	4.6
32(7.3)	18(5.2)	13(3.8)	11(1.2)	0.3	1.6	3.1	14	0.5	0.7	0.9	1.5
—	16(2.1)	—	—	—	1.8	—	—	—	0.8	—	—
—	21(6.6)	21(4.4)	—	—	2.4	5.2	—	—	1.2	1.7	—
49(8.9)	31(3.1)	24(2.5)	14(1.4)	0.6	3.0	6.9	34	1.0	1.6	2.1	—
80(11.0)	43(7.8)	27(5.0)	15(1.9)	0.1	1.1	2.4	12	0.2	0.5	0.8	1.1
—	50(9.5)	—	15(1.5)	—	1.0	—	9	—	0.5	—	0.8
—	45(8.9)	—	15(1.5)	—	1.6	—	15	—	0.8	—	1.1

TEST CONDITIONS

Test instrument	"Instron" Tensile Tester
Amount of specimen elongation	1%, 3%, 5%, and 15%
Rate of elongation	10% of nominal test length per minute
Holding time at specified elongation	30 seconds
Rate of recovery	10% of nominal test length per minute

EFFECT OF RELATIVE HUMIDITY ON THE RECOVERY

Tensile Form Recovery from 3% Elongation for---



	TENSILE FORM RECOVERY* (percent) at Relative Humidities of					STRESS DECAY (percent) at R.H. of				
	8%	33%	65%	82%	93%	8	33	65	82	93
ACELE** 75-24, bright acetate yarn	77(4.0)	74(3.6)	69(2.3)	69(3.5)	59(2.6)	20	24	22	27	31
DACRON** 70-34-56 polyester fiber	83(5.7)	82(4.3)	76(3.2)	84(3.5)	76(5.2)	18	20	20	21	23
Nylon 40-13-200	84(2.8)	90(3.8)	88(0.5)	91(4.3)	93(1.4)	21	22	25	16	13
ORLON** 3.0-42 acrylic tow	77(2.2)	76(2.4)	73(3.0)	69(2.4)	69(3.0)	26	25	29	30	31
Rayon 150-40, bright	62(4.9)	72(6.6)	61(6.7)	57(8.5)	60(10.0)	26	22	28	32	32
Silk 13/15 Japan	69(2.9)	70(1.9)	67(3.4)	66(3.6)	66(3.5)	18	20	21	24	24
Wool 64's Australian Merino, fine	80(7.9)	80(5.6)	75(3.9)	72(6.7)	77(5.6)	17	15	18	17	19

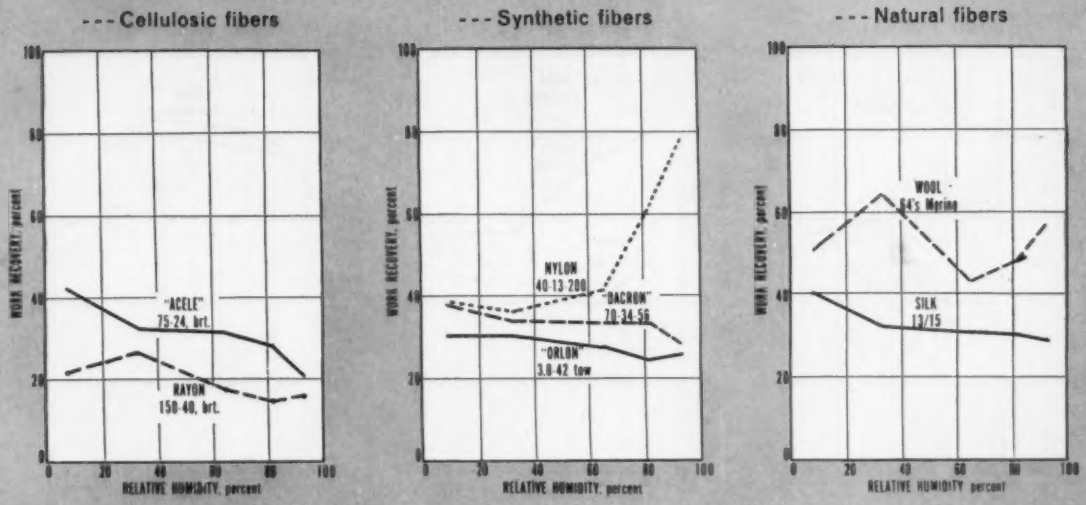
*Standard deviations shown in parentheses
**Du Pont's registered trademark

SUMMARY OF

Test specimen	Boiled-off single filaments or single fibers
Nominal test length of specimen	20" for all filament and tow samples 3" for wool samples
Environmental conditions	At 70°F. with 8%, 33%, 65%, 82%, and 93% R.H.

OF SCOURED FIBERS IN AIR AT 70° FAHRENHEIT

Work Recovery from 3% Elongation for---



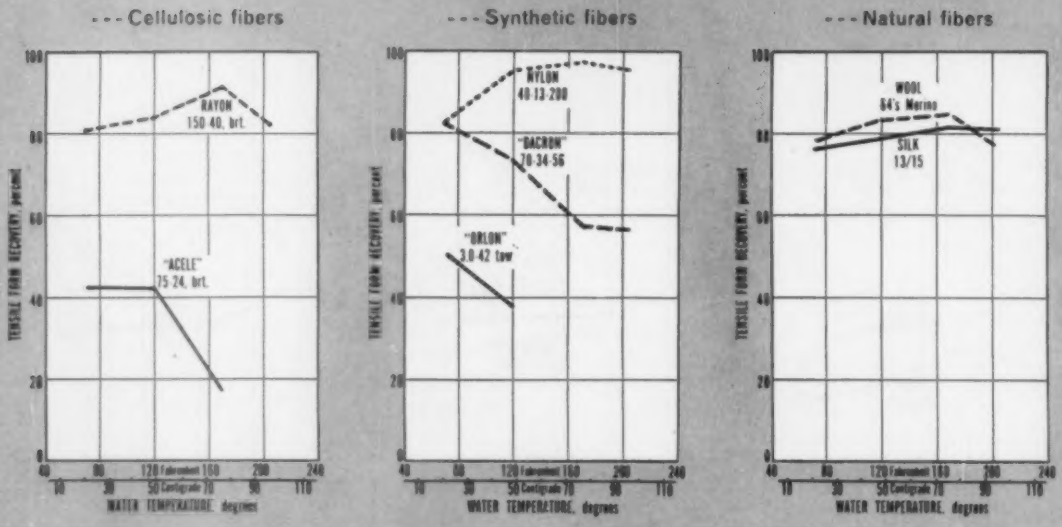
WORK RECOVERY* (percent) at Relative Humidities of					WORK TO ELONGATE (gm. cm. per den. cm. × 100) at Relative Humidities of					INITIAL STRESS (gm. per den.) at Relative Humidities of				
8%	33%	65%	82%	93%	8	33	65	82	93	8	33	65	82	93
42(3.3)	33(7.3)	32(1.0)	28(2.7)	21(1.3)	1.7	1.6	1.2	1.3	1.1	0.8	0.8	0.6	0.6	0.5
38(5.6)	34(3.4)	34(4.0)	33(3.2)	28(5.0)	2.4	2.4	2.3	2.4	2.2	1.1	1.2	1.1	1.1	1.0
38(2.7)	37(3.1)	42(2.3)	63(3.2)	78(8.3)	1.9	1.9	1.0	0.7	0.6	0.9	0.9	0.5	0.4	0.4
31(3.0)	30(3.8)	28(2.6)	24(2.2)	26(6.7)	2.3	2.3	1.8	2.0	2.0	1.1	1.2	0.9	1.0	1.0
22(4.1)	27(5.3)	18(5.2)	15(3.7)	16(4.1)	2.8	3.1	1.6	1.4	0.9	1.2	1.4	0.7	0.6	0.4
41(10.6)	33(1.5)	31(3.1)	31(3.0)	29(2.7)	5.0	4.6	3.0	3.0	1.7	2.8	2.4	1.6	1.5	0.9
50(2.0)	65(6.6)	43(7.8)	49(8.5)	58(10.6)	1.1	1.3	1.1	0.5	0.6	0.6	0.7	0.5	0.2	0.3

TEST CONDITIONS

Test instrument	"Instron" Tensile Tester
Amount of specimen elongation	3%
Rate of elongation	10% of nominal test length per minute
Holding time at 3% elongation	30 seconds
Rate of recovery	10% of nominal test length per minute

EFFECT OF TEMPERATURE ON RECOVERY

Tensile Form Recovery from 3% Elongation for---



	TENSILE FORM RECOVERY* (percent) in Water at Temperatures of				STRESS DECAY (percent) in Water at Temperatures of			
	70°F.	120°F.	170°F.	206°F.	70°F.	120°F.	170°F.	206°F.
ACELE** 75-24, bright acetate yarn	43(5.8)	42(7.2)	17(9.2)	—	36	36	60	—
DACRON** 70-34-56 polyester fiber	83(3.1)	73(1.7)	58(3.2)	57(9.1)	21	24	28	36
DACRON 220-50-51	78(2.8)	—	—	57(4.6)	22	—	—	36
DACRON 3.0-54 tow	73(3.1)	—	—	72(10.2)	19	—	—	26
Nylon 40-13-200	83(2.0)	96(0.6)	98(4.0)	95(1.6)	12	5	5	6
Nylon 810-140-300	79(0.8)	—	—	95(1.8)	23	—	—	6
Nylon 3.0-200 tow (regular)	85(8.7)	—	—	91(6.3)	13	—	—	7
Nylon 3.0-200 tow (not crimped)	85(4.1)	—	—	93(4.2)	12	—	—	7
ORLON** 3.0-42 acrylic tow	51(4.1)	38(1.7)	—	—	37	42	—	—
ORLON 100-40-81	59(4.6)	60(3.5)	81(1.1)	87(4.8)	31	32	21	20
Rayon 150-40, bright	81(2.6)	84(2.7)	92(4.2)	82(6.0)	18	11	9	8
Rayon 3.0, dull tow	80(5.5)	—	—	82(5.6)	20	—	—	10
SUPER CORDURA** 1650-720-258 high tenacity rayon	83(3.4)	—	—	78(10.4)	25	—	—	20
Silk 13/15, Japan	77(1.8)	79(3.2)	82(4.8)	81(5.1)	15	12	12	9
Wool 61's Australian Merino, fine	79(10.0)	84(12.4)	85(13.1)	77(27.5)	19	17	11	13
Wool 54's domestic, medium	89(20.8)	86(9.8)	—	78(11.4)	13	13	—	15
Wool 40's carpet, coarse	96(18.9)	98(0.7)	—	91(7.7)	13	10	—	23

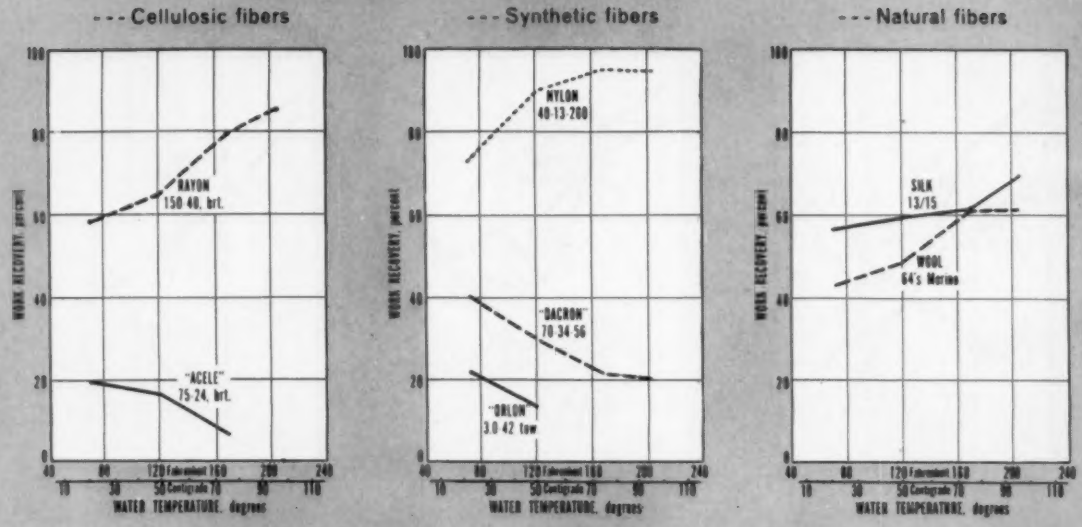
*Standard deviations shown in parentheses
**Du Pont's registered trademark

SUMMARY OF

Test specimen	Boiled-off single filaments or single fibers
Nominal test length of specimen	20" for all filament and tow samples 2" for wool samples
Environmental conditions	In water at 70°F., 120°F., 170°F., and 206°F.

OF SCOURED FIBERS TESTED IN WATER

Work Recovery from 3% Elongation for---



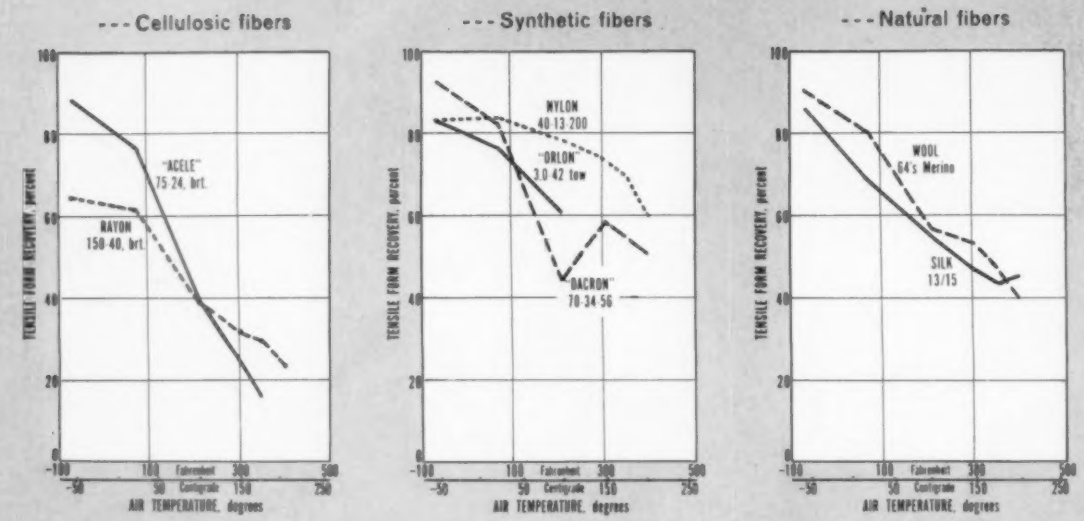
WORK RECOVERY* (percent) in Water at Temperatures of				WORK TO ELONGATE (gm. cm. per den. cm. × 100) in Water at Temperatures of				INITIAL STRESS (gm. per den.) in Water at Temperatures of			
70°F.	120°F.	170°F.	206°F.	70°F.	120°F.	170°F.	206°F.	70°F.	120°F.	170°F.	206°F.
20(2.8)	17(2.1)	7(4.8)	—	0.6	0.5	0.2	—	0.3	0.3	0.1	—
41(1.4)	30(1.3)	21(1.0)	21(4.7)	2.1	1.9	1.2	0.8	1.1	0.8	0.5	0.3
34(2.5)	—	—	18(3.0)	2.7	—	—	1.2	1.2	—	—	0.5
43(2.3)	—	—	38(12.1)	1.4	—	—	0.5	0.7	—	—	0.3
73(1.2)	90(3.2)	95(5.5)	95(5.7)	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
57(2.3)	—	—	90(27.9)	0.6	—	—	0.4	0.4	—	—	0.2
77(7.0)	—	—	87(12.3)	0.3	—	—	0.3	0.2	—	—	0.2
74(8.7)	—	—	96(4.7)	0.4	—	—	0.3	0.3	—	—	0.2
22(2.5)	13(1.0)	—	—	1.7	0.9	—	—	0.8	0.4	—	—
24(1.1)	26(2.3)	57(6.4)	68(7.4)	2.7	1.7	0.6	0.3	1.2	0.9	0.3	0.2
58(3.2)	65(2.5)	80(11.7)	85(10.9)	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
58(2.2)	—	—	85(10.1)	0.2	—	—	0.2	0.2	—	—	0.1
51(5.2)	—	—	66(11.5)	0.3	—	—	0.3	0.2	—	—	0.2
57(1.3)	59(2.5)	61(7.9)	69(7.5)	0.8	0.8	0.9	0.7	0.5	0.5	0.5	0.4
43(11.4)	48(11.0)	61(15.2)	61(23.6)	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1
60(9.8)	65(14.1)	—	60(15.6)	0.3	0.2	—	0.2	0.2	0.1	—	0.1
65(4.0)	74(7.2)	—	54(12.0)	0.6	0.6	—	0.4	0.3	0.3	—	0.2

TEST CONDITIONS

Test instrument	"Instron" Tensile Tester
Amount of specimen elongation	3%
Rate of elongation	10% of nominal test length per minute
Holding time at 3% elongation	30 seconds
Rate of recovery	10% of nominal test length per minute

EFFECT OF TEMPERATURE ON RECOVERY

Tensile Form Recovery from 3% Elongation for---



	TENSILE FORM RECOVERY* (percent) in Air at Temperatures of						STRESS DECAY (percent) in Air at Temperatures of					
	−70°F.	70°F.	210°F.	300°F.	350°F.	400°F.	−70	70	210	300	350	400
ACELE** 75-24, bright acetate yarn	88(4.0)	77(4.0)	39(3.7)	24(2.3)	16(3.8)	—	14	20	35	47	57	—
DACRON** 70-34-56 polyester fiber	93(2.3)	83(5.7)	44(3.6)	58(3.6)	55(6.2)	50(5.4)	12	18	33	27	27	34
DACRON 220-50-51	90(1.6)	—	—	52(5.8)	—	—	16	—	—	28	—	—
Nylon 40-13-200	83(1.4)	84(2.8)	78(2.0)	74(5.1)	70(2.4)	60(6.6)	17	21	17	16	19	27
Nylon 840-140-300	88(2.6)	—	—	73(3.4)	—	—	12	—	—	17	—	—
ORLON** 3.0-12 acrylic tow	83(2.5)	77(2.2)	61(2.3)	—	—	—	15	26	33	—	—	—
ORLON 100-40-81	85(0.9)	—	79(0.5)	79(3.8)	72(7.1)	50(3.4)	16	—	22	14	20	37
Rayon 150-40, bright	64(5.9)	62(4.9)	39(1.3)	31(2.3)	29(3.3)	24(1.4)	24	26	29	35	36	45
SUPER CORDURA** 1650-720-258 high tenacity rayon	69(5.1)	—	—	30(3.5)	—	—	22	—	—	35	—	—
Silk 13/15, Japan	86(4.5)	69(2.9)	55(3.9)	47(1.9)	44(2.1)	45(3.7)	10	18	15	23	27	30
Wool 64's Australian Merino, fine	91(0.7)	80(7.9)	57(5.4)	53(5.6)	48(6.2)	39(7.8)	10	17	23	32	34	43

*Standard deviations shown in parentheses

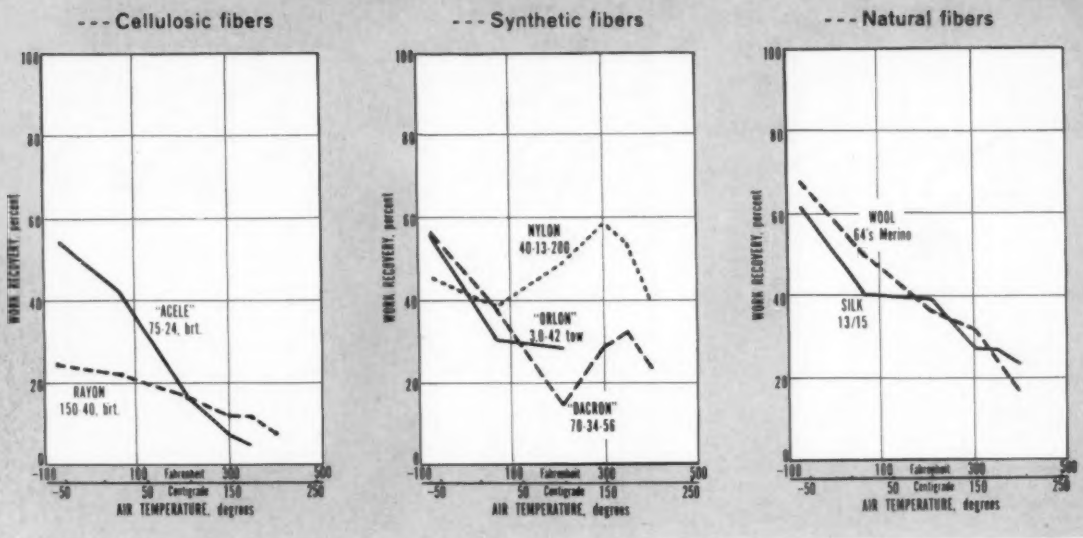
**Du Pont's registered trademark

SUMMARY OF

Test specimen	Boiled-off single filaments or single fibers
Nominal test length of specimen	20" for all filament and tow samples 3" for wool samples at 70°F. (8% R.H.) 2" for wool samples at all other conditions
Environmental conditions	−70°F. (100% R.H.); 70°F. (8% R.H.); 210°F., 300°F., 350°F., 400°F. (0% R.H.).

OF SCOURED FIBERS TESTED IN AIR

Work Recovery from 3% Elongation for---



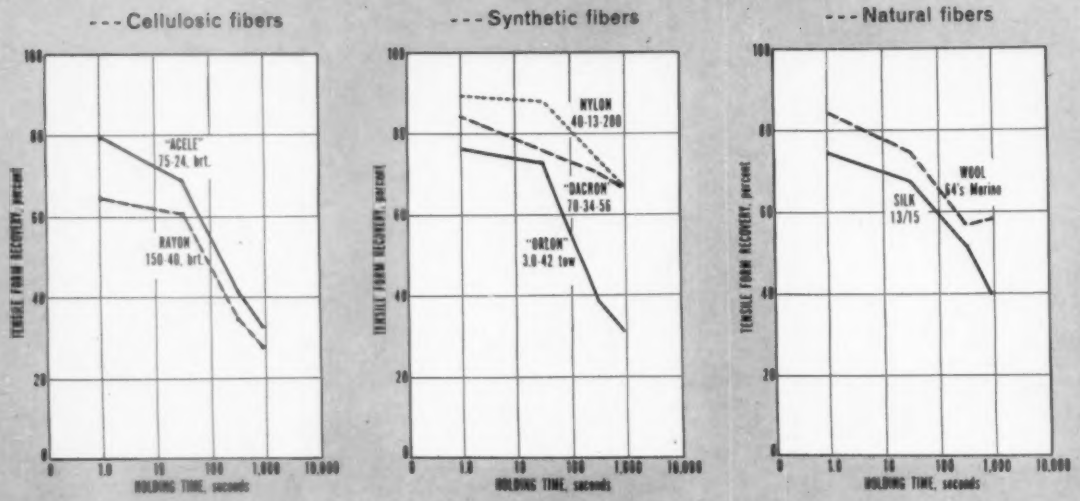
WORK RECOVERY* (percent) in Air at Temperatures of						WORK TO ELONGATE (gm. cm. per den. cm. × 100) in Air at Temperatures of						INITIAL STRESS (gm. per den.) in Air at Temperatures of					
-70°F.	70°F.	210°F.	300°F.	350°F.	400°F.	-70	70	210	300	350	400	-70	70	210	300	350	400
55(6.0)	42(3.3)	17(1.6)	8(1.4)	5(0.8)	—	2.0	1.7	0.9	0.5	0.3	—	1.1	0.8	0.4	0.3	0.1	—
57(4.8)	38(5.6)	15(0.9)	29(3.1)	33(3.2)	24(1.8)	3.8	2.4	1.3	0.5	0.2	0.2	2.1	1.1	0.6	0.3	0.1	0.1
50(3.0)	—	—	24(3.6)	—	—	4.8	—	—	0.5	—	—	2.6	—	—	0.3	—	—
45(4.7)	38(2.7)	49(2.1)	59(1.2)	54(2.4)	41(5.7)	3.0	1.9	0.6	0.4	0.4	0.4	1.6	0.9	0.4	0.3	0.3	0.2
53(3.7)	—	—	59(4.9)	—	—	3.1	—	—	0.4	—	—	1.7	—	—	0.3	—	—
56(4.4)	31(3.0)	29(3.1)	—	—	—	3.8	2.3	0.3	—	—	—	2.2	1.1	0.2	—	—	—
52(2.3)	—	44(10.3)	63(6.6)	55(5.3)	21(2.1)	6.3	—	0.7	0.2	0.2	0.2	3.4	—	0.4	0.1	0.1	0.1
25(3.3)	22(4.1)	16(1.7)	12(1.6)	12(1.6)	8(1.1)	4.9	2.8	2.1	1.6	1.6	1.2	2.3	1.2	1.0	0.8	0.7	0.5
28(5.0)	—	—	13(1.7)	—	—	4.2	—	—	2.0	—	—	2.1	—	—	1.0	—	—
62(2.0)	41(2.0)	40(4.4)	27(1.7)	27(3.5)	23(4.1)	5.1	5.0	2.9	2.5	2.4	1.7	3.0	2.8	1.8	1.4	1.4	1.0
68(8.8)	50(10.6)	37(5.5)	32(5.4)	25(5.0)	17(6.1)	1.9	1.1	1.0	0.6	0.6	0.5	1.2	0.6	0.5	0.3	0.4	0.3

TEST CONDITIONS

Test instrument	"Instron" Tensile Tester
Amount of specimen elongation	3%
Rate of elongation	10% of nominal test length per minute
Holding time at 3% elongation	30 seconds
Rate of recovery	10% of nominal test length per minute

EFFECT OF HOLDING TIME ON RECOVERY OF SCOURED

Tensile Form Recovery from 3% Elongation for---



	TENSILE FORM RECOVERY* (percent) after Holding Time of			
	1 sec.	30 secs.	300 secs.	900 secs.
ACELE** 75-24, bright acetate yarn	80(5.7)	69(2.3)	41(2.4)	33(1.7)
DACRON** 70-34-56 polyester fiber	84(5.9)	76(3.2)	70(5.3)	67(5.2)
DACRON 220-50-51	—	88(3.4)	—	73(3.2)
Nylon 40-13-200	90(1.2)	88(0.5)	73(0.4)	67(4.1)
Nylon 840-140-300	—	89(1.1)	—	74(3.2)
ORLON** 3.0-42 acrylic tow	76(2.1)	73(3.0)	38(2.0)	31(2.6)
ORLON 100-40-81	81(1.1)	76(0.6)	56(3.3)	45(11.0)
Rayon 150-40, bright	64(2.8)	61(6.2)	35(7.0)	28(7.7)
SUPER CORDURA**1650-720-258 high tenacity rayon	—	63(8.8)	—	47(12.8)
Silk 13/15 Japan	75(1.5)	67(3.4)	51(5.8)	40(4.4)
Wool 64's Australian Merino, fine	84(8.2)	75(3.9)	57(9.7)	58(7.0)

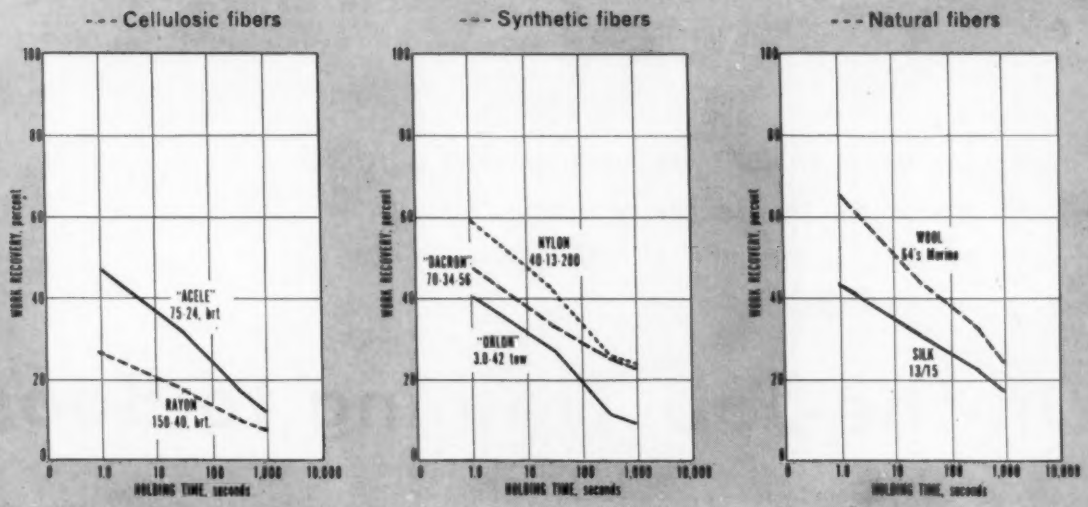
*Standard deviations shown in parentheses
**Du Pont's registered trademark

SUMMARY OF

Test specimen	Boiled-off single filaments or single fibers
Nominal test length of specimen	20" for all filament and tow samples 3" for wool tested with holding time of 30 seconds 2" for wool tested at all other conditions
Environmental conditions	70°F., 65% R.H.

FIBERS TESTED IN AIR AT STANDARD CONDITIONS

Work Recovery from 3% Elongation for---



WORK RECOVERY* (percent) after Holding Time of				STRESS DECAY (percent) during Holding Time of			
1 sec.	30 secs.	300 secs.	900 secs.	1	30	300	900
47(8.0)	32(1.0)	18(4.5)	13(4.4)	6	22	43	47
49(3.1)	34(3.4)	26(2.3)	23(1.9)	6	20	27	30
—	39(3.1)	—	23(1.7)	—	20	—	30
60(7.1)	42(2.3)	26(3.6)	24(2.8)	3	25	37	41
—	40(2.7)	—	26(2.6)	—	22	—	37
40(4.4)	28(2.6)	12(1.2)	10(0.9)	8	29	45	51
43(4.1)	27(1.8)	18(0.8)	14(1.2)	8	27	34	41
27(3.4)	18(5.2)	10(1.1)	8(3.1)	11	28	43	48
—	21(6.6)	—	17(5.7)	—	29	—	36
43(4.4)	31(3.1)	23(4.2)	18(2.0)	6	24	29	37
66(15.4)	43(7.8)	33(11.2)	25(5.1)	4	18	27	32

TEST CONDITIONS

Test instrument	"Instron" Tensile Tester
Amount of specimen elongation	3%
Rate of elongation	10% of nominal test length per minute
Holding time at 3% elongation	1, 30, 300, and 900 seconds
Rate of recovery	10% of nominal test length per minute

Two management committees have sparked a growth of 20% a year for this textile company. Today's problem: how to continue that rate—and add even more speed to it. The solution:

On-the-Job Training to Boost

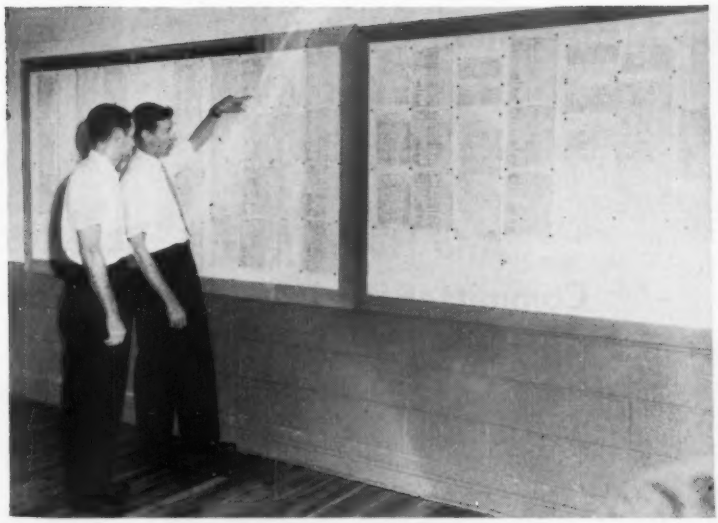
HERE'S one textile company that's increasing its scope and vigor by continuously up-grading management knowledgeability and control. This is a two-step process.

Step No. 1: The company has long had two management committees responsible for continuous company growth—a production committee for weekly control of company planning, and an advisory committee for a monthly check of detailed operations. These committees have ridden herd on the company's operations for some time.

Step No. 2: Now, today, comes a training program designed to boost efficiency and lower costs.

TRAINING sewing-machine operators—450 of them—is the immediate goal of Sale Knitting Co.'s new training program.

Growth



SUPERVISION by Superintendent Harry Dalton and Training Manager Joe Fore is close. They check daily progress on the bulletin board.

The company is Sale Knitting Co., Inc., Martinsville, Va. It produces 150,000 pounds of double-fleeced cotton sportswear a week. Production starts with gray yarn and continues through dyeing and finishing complete garments.

THE TRAINING PROGRAM

Sale has big plans for its new training program—from its immediate goal of training 450 women in its No. 2 Plant sewing rooms to eventually spreading the program throughout the mill. Training now covers six primary jobs. But there are 20 to 25 operations with training possibilities, and Manager Joe Fore estimates training will involve 90% of plant operations.

The company's first move was to hire an originally English training consulting firm—Hitchcock, Ibbotson, & Hoddinott on April 10 of this year. Then it hired a young college graduate, Mr. Fore, as training manager to work with the consultant. The firm has spent five months at the mill—one working with the personnel department to set up an employee selection program, and four months to set up the actual training program.

First job at Sale is training new sewing-machine operators. The company expects to have up to 20 women in training during the rest of the year.

Under the old "sitting next-to-Nellie" system, now being displaced by the new program, new employees need an average of 28 weeks on some operations to reach the $1.00 an hour minimum pay. Sale makes up the difference between actual earnings and the minimum pay with what it calls "make-up" pay.

Already, within the short period of new training, some operators have reached the $1.00 an hour minimum in three to four weeks.

GAINS ADDED UP

Compared with former training results, Sale is now saving "make-up" pay at the rate of $12,000 a year. When minimum pay reaches $1.15 an hour in September, the firm expects to save $34,000. And when the $1.25-an-hour minimum wage is reached, yearly savings will be $61,000.

But Sale also expects eventually to cut labor turnover by 33% and over-all training time by 80%.

Under direction of the training manager, older workers will be retrained in better methods. One big advantage: Girls will learn several jobs so they can switch from one job to another and eliminate production bottlenecks.

Retraining experienced operators has been done on two sewing operations: (1) flat-lock seaming and (2) flat-lock cuffing.

A training room has been set up away from production areas. Written job breakdowns are being made continuously. A manual is being written on operations and analysis.

After the consulting firm leaves the mill, written reports will be sent to it for three months. Then the firm will check back when the reports show advice is needed.

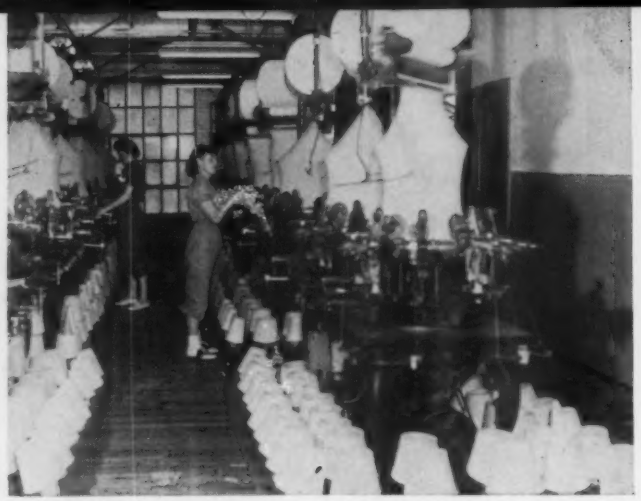
The goal in hiring new employees is to hire only girls with a high-school education, since the company thinks the skill needed by its employees is constantly increasing. The personnel department gives aptitude tests to all applicants.

A SOLID BASE

After working on new employee selection in the personnel department, Sale moved into its methods-time-measurement (MTM)

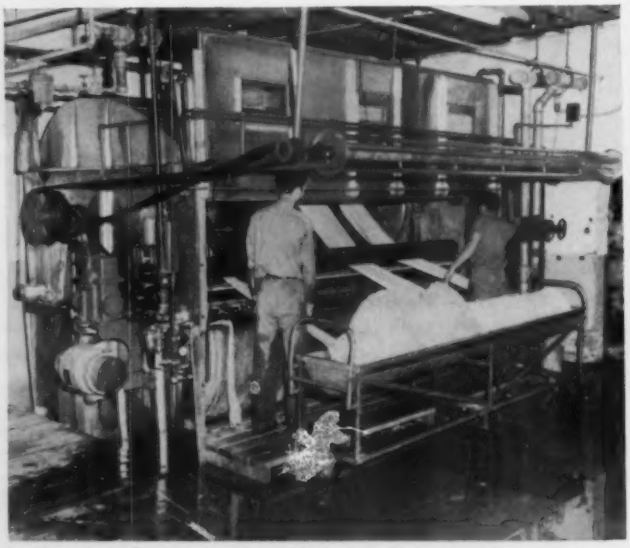
Here Are Some Answers That An Alert Top Management Committee Came Up With At Sale Knitting Co. . . .

. . . And Here's The Committee At Work



IN KNITTING, the varied diameters (16) of knitting machines are an offshoot of a production-group decision.

HARD at work are J. Smith, assistant vice president (left); T. Hardie, operations manager; W. Franck, president; H. Dalton, superintendent; and W. Putney, production manager. All but Mr. Dalton are regular members of the production committee. Dalton is sitting in on this meeting to help solve special problems in sewing and finishing.



IN DYEING, management's decisions have resulted in 17 colors of fabric with direct, sulfur, and developed dyes.

IN FOLDING, the company has installed three machines running at 30 ypm. to keep up with the turning poll's 90 ypm.

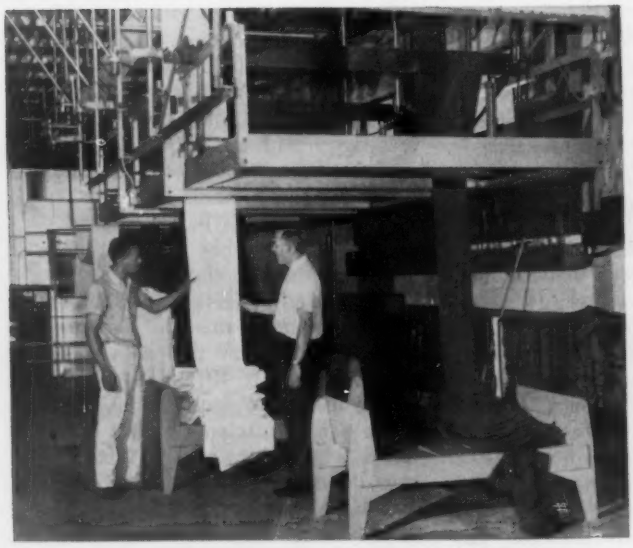
ON-THE-JOB TRAINING

. . . Begins on page 64

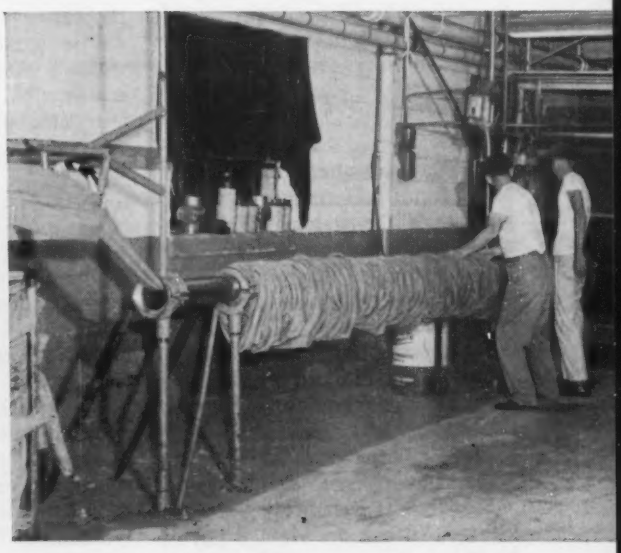
department to gather basic data for training. (This MTM department, organized in 1954, has become so effective that piece rates seldom have to be altered.) Here, the company thoroughly analyzed each job that a training plan would be set up for. It watched experienced operators, and broke down jobs into movements and parts. By observing several operators, Sale determined

IN SALES, committee's decision to go ahead with screen printing adds an important sales tool—garment versatility.

IN PRODUCTION, management's latest decision: adding new napper that double-naps three rolls of fabric at 30 ypm.

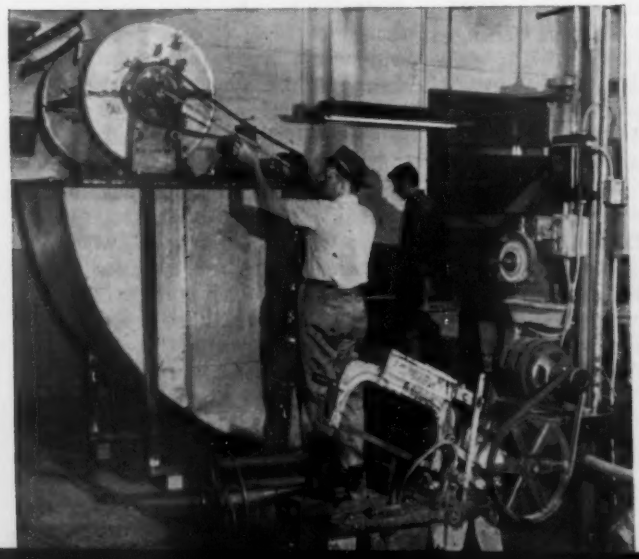


IN DRYING, Sale now dries three strands at once on a new machine heated by natural gas. Output: 16 ypm.



IN TURNING, high speeds are now possible with this turning pole that changes fleeced side of fabric to the inside.

IN STYLING, faster work is possible because of a mill-designed machine for dyeing sample lengths of 150 yards.



IN TRAINING, the committee's touch is felt down the line in knitting room, where it always keeps two fixers in training.

what its training methods would be.

Each job is divided into several parts. If a girl does well on three parts, for example, but does badly on a fourth, she practices the fourth part as an isolated job.

The program is based on: (1) key points of methods, (2) time target, and (3) stamina build-up. Stamina build-up is one of the most important objectives. For example, one girl quickly learned to seam the sleeves of sweaters in 8 minutes and 15 seconds per dozen. Hourly pay without a break would have been $2.30. But the girl had to build up stamina. Another point to remember: Fifteen percent of each employee's time is rest time.

SECRET OF SUCCESS

Secret of Sale's success in quick training: motivating the learner. Measures of performance at the beginning of the training period include quantity for a given time, time to complete a given quantity, and number of good and bad pieces in a given quantity. These measures have two main objectives: (1) to provide a level to measure the learner's ability and progress, and (2) to give the learner an incentive by presenting a challenge she believes she can meet.

Sale's over-all target is for each learner to reach an average pay of $1.40 an hour as quickly as possible. In addition, the company feels, in reaching this goal the learner has a sense of achievement.

The company keeps detailed records of each girl's progress. She always knows how well she is doing. At the end of each day, each girl is given a summary of her day's work. Soon each girl is scoring and analyzing her own progress. She can see her record posted on a bulletin board 4 feet wide and 16 feet long. Each weekly pay-check stub shows the learner how much she earns, how much is make-up pay.

MEET THE COMMITTEES

The backbone of the company's growth—and it has been growing 20% a year for the past 11 years—is its two management committees. The production group, which meets each Friday, is made up of William F. Franck, president; John R. Smith, assistant vice president and sales liaison; Thomas Hardie, operations manager; and W. K. Putney, production manager.

Reason for the weekly meetings: President Franck believes in putting responsibility where it should be—on the shoulders of the men doing the job. At these meetings, committee members discuss status of orders on hand, dates of delivery, and special problems. From the decisions, they map production for the following week—for three plants and 900 people.

The second committee, or advisory committee, meets once each month. It's attended by the same four men plus plant superintendents and other production heads.

WHAT THEY WORK ON

Here's a rundown on some of the many operations that the management committees keep tabs on.

Mill No. 1 is a knitting and dyeing operation. There are two knitting rooms: one for border knit goods to trim garments, and another for garment bodies. Sale does all knitting on circular machines. It makes border knit goods on Wildman PB-2 machines and Scott & Williams F-1's. It knits all garment bodies on Tompkins machines and makes each garment to a specific size for men, women, and children. Machine diameters are 9 to 28 inches. Thirty new machines are now being installed.

Sale has standardized on all its yarns. Border-fabric yarns on Wildman and Scott & Williams machines are 10s dyed yarn and 14s gray yarn. On Tompkins machines, face and tie-in yarns are 28s. Backing yarns are 7s and 11s.

Knitters operate Tompkins machines under a strict maintenance schedule. When a roll of cloth is to be doffed, the knitter changes the pattern to balbriggan and knits six inches on this pattern. Then she counts the courses per inch. If courses vary from the standard, she flags the machine for the fixer.

She blows off the machine thoroughly with an air hose and wipes it well with a cloth. Then she oils it. All machines have an automatic blow-down air system.

Women knitters run nine machines of three, four, and five sets of feeds. Men knitters run a total of 150 yarn ends. There are two fixers and one fixer-learner on the day shift, plus a fixer and a learner on the second shift. The foreman looks after all machines on the third shift.

COLORS GALORE

The finishing department, another area for management control and employee training, is in the basement of the mill housing knitting machines. As a roll of fabric is doffed from a knitting machine, it is tagged with a ticket and placed in one of several chutes that lead to the basement. This way, material handling is all but eliminated.

One of Sale's big presentations in product sales is the finish on its garments. All fabric is double napped. Napping machines (seven) are David Gessner and Davis & Furber. Speed is 30 and 24 ypm.

Sale uses six Rodney Hunt Tru-Shade dyeing machines to wet out, bleach, and dye knitted fabrics. Now there are 17 dyed colors. By combining these colors with many striped and solid-color borders, Sale has a host of finished colors.

Sale's three mills in Martinsville, Va., and large warehouses in Kohler, Va., and Roxboro, N. C., stay in close communication with one another by using trucks that shuttle among the buildings.

Goods finished in Plant No. 1 are trucked to Plant No. 2, one mile away, where they are sewn into finished garments. Plant No. 3 is used for assembling goods by orders and for shipping. In Plants Nos. 2 and 3, as in Plant No. 1, the company eliminates all material handling possible. An elevator lifts goods to the top floor of Plant No. 2, where they are cut. Then a series of chutes lowers them to the four floors below, where they are made into finished garments. Plant No. 3 has a complete conveyor system for handling and shipping goods.

That Man You Dislike

Everybody has the problem of working with someone he dislikes. Effects range from lost enthusiasm to low efficiency. Here are tips on getting rid of the dislike instead of the man.

"THIS, MY FRIEND, would be a good place to work if it weren't for that one guy!"

"I know how you feel, Al. He's a real pain to you. But why don't you do something about it?"

"Do something? I wish I could. I'd fire him so fast he wouldn't know what happened."

"That isn't what I mean, Al. What I mean is, why don't you try to get rid of your feeling, instead of trying to get rid of the guy?"

"Yeah. Sounds easy. Only you tell me how to do it."

RARE AS RAIN

Al is no odd, one-in-a-million case. In fact, you'd have to go a long way to find a person who doesn't suffer from the same affliction—having to work with someone he dislikes. The difference is that some of us suffer more, some less. It's just a matter of degree.

The range goes all the way from the fellow who literally gets sick because he's been agonizing day and night over "that jerk" in the next department, to the man who says to himself, "I don't like him and I'm never going to like him. But I have to put up with him, so I'm not going to let it bother me."

Between these two are a great variety of effects that stem from bad interpersonal relationships:

- Chet Fox is working at about 20% efficiency because he's absorbed in his distaste for one of the men in his shop.
- George Rankin, an intelligent supervisor when his emotions are in check, does stupid, childish things to express his anger at the man he dislikes.
- Bill Webb spends so much of his day trying to "get back at" his tormentor that he's been putting in four or five hours of unpaid overtime almost every night.
- Jim Baines is always tired. He burns up all his energy in rancor at a fellow employee

Although you don't have to like a person to be able to work with him, work is a lot more pleasant—and easier and productive—if you're free of the debilitating effects of active dislike.

Let's discuss it in Al's terms:

External approach—Getting rid of the man is unlikely if he's a manager up the line, a staff man, your boss, or a colleague. Actually, anything you do in this direction—such as undercutting him, trying to make him look bad, talking against him behind his back—only succeeds in reflecting unfavorably on you. If nothing else, it makes you look like a dope because it's so futile.

But when the man you dislike is your subordinate or a low-level employee in another department, say a clerk in accounting or a male secretary in quality control, you may be in a position to get him fired—if that's really what you want.

Yet, even though it may seem like a victory at first, getting him fired will represent an actual personal defeat. Victory (and growth and deep-down satisfaction) lies not in overcoming the man, but in overcoming the dislike. Instead of using your intelligence, knowledge, and skill, you've had to resort to that last of all appropriate resorts for a supervisor—force.

Internal approach—All of the following will apply to the target of your dislike at whatever level he functions. But it is the nature of things that certain methods are more apt where your subordinate is concerned. Others work better with people on your echelon. And still different methods are best when you are involved with superiors. (Even though you're convinced that the guy is "superior" only in job title and the pay he draws—which, you're also convinced, is due to nepotism, politics, or some scandal he knows about the brass—he's unquestionably up the line and has to be dealt with as such.)

The internal approach presents four questions—each of the four, like most good questions, leading on to others. You may find your solution in the answer to question No. 1. This often happens. But if you don't, then go on to 2, 3, and, if necessary, 4.

FOUR QUESTIONS TO ASK

Here's the first, and perhaps the most important, question:

1. "Why do I dislike the man?" Identify the basis of your disaffection. Think about it until you are honestly aware of why this certain person has such a capacity to raise your back hair.

If you're like everyone else, you may find it isn't easy to pin down the real, basic cause. Quite likely, you'll begin by sputtering, "Well, he keeps on doing this or that!" But is it something other people also do,

By S. G. WILLIAMS
Management Consultant
New York City

without making you just as mad?

Or perhaps you'll come out with this not uncommon response: "I just don't like the guy, that's all. I don't know why." Keep digging until you do know why. (An excellent device, if you have the equipment handy, is to turn a tape recorder on and spiel into it all your grievances about the fellow. Then play it back—and listen. Play it back again after a few hours—and listen again. You may be surprised at how sheepish you begin to feel.)

It won't be unusual if you make some false starts—that is, give yourself several reasons that don't stand up when you re-examine them carefully for logic and rationality. But if you do keep searching, you'll find the basic reason. Then examine it. Examine it with the two "P's" in mind: Projection and Prejudice.

Projection—This is a fancy word with a simple meaning that the psychologists use. It means this: What really makes us angry about others is what we don't like in ourselves. A friend of ours who rides the New York subway shuttle train between Grand Central Station and Times Square (the busiest part of the whole New York underground system) was revealing one of his own projections when he said this the other day.

"It sure makes me mad when I'm hurrying to get on that train and some joker who doesn't have any place to go just loafs along, getting in my way so I have to jostle around him. The only thing that makes me madder is when I'm not in a rush and some maniac nearly knocks me down in his panic to get inside the door before it closes."

The practical principle of projection quickly becomes clear. When you have identified the reason why you dislike the man you dislike, check carefully to see if what he does that makes you angry isn't something you suspect yourself of doing, too. If it is, then you have ample basis for being angry at yourself, not at him. As a matter of fact, what's got you upset is that he is so much like you, at least in that one undesirable respect.

Prejudice—When you've found the reason, look at it closely for bias. If you catch yourself saying, "He's a fat slob," or "Gee, all you gotta do is look at those wavy locks of his and it makes you sick," it's a thousand-to-one bet you're being victimized by one of your pet prejudices. Ask yourself if you have a tendency to react unfavorably to all men who are fat or have wavy hair. If so, that, sir, is a prejudice, and a prejudice is a reaction that has no basis in fact. Consequently, your "basic reason" dissolves into thin air and you either have to find a better, unprejudiced reason, or start liking the fellow.

Prejudices can be just about anything. As a starter, here's a list of some prejudices that many people have: short men, tall men, men with straight backs, men with stooped backs, men with dark skin, men with light skin, Jewish men, Scotsmen, Englishmen, Frenchmen, Germans, Armenians, Greeks, Turks, Arabs, men with a lot of sex appeal, men with no sex appeal, etc., etc.

Just in case your efforts to answer Question 1 haven't changed the situation, try Question 2.

2. "Why doesn't everyone else dislike the man?" After all, you're normal. You act like everyone else. So why are you reacting differently from others?

The best way to get the answer is to take the bit in your teeth and ask several people the more direct version of the same question. "What is it that you like about so-and-so?" If you ask enough people, you'll get several different answers but you'll also get the same answers repeated several times. Of course, you won't believe any of them, so you'll have to begin looking for yourself. You'll have to start watching the man to see if he really has those good features your respondents have mentioned. First thing you know, you'll be accenting the positive, losing sight of the negative.

If that doesn't work, turn to Question 3. Ask yourself:

3. "What can I do to help him?" When we have done something for our fellow man, we develop a feeling for him, a relationship with him. It's a subtle phenomenon, probably related to the fact that he has given us an opportunity to serve and we like to serve.

Another factor enters the picture here. Because of our dislike, we haven't tried to help this particular person. So we're changing the situation—we're deflecting the current, as it were. This is bound to produce some result different from what we've been having.

Still another point is worthy of mention. We've been looking at the man we dislike with a single, well-defined attitude. But we can't just say to him, "What can I do to help you?" No, we have to look for needs he has that we might fill, for weaknesses we might strengthen. This obliges us to take a new stance, to alter our way of looking at him, to change our attitude.

We don't even have to find a way we can help him, perhaps. The mere act of looking for a way may do the trick. But if looking, finding, and performing the service don't do it, we can try Question 4.

4. "What can I ask him to do to help me?" It is a very difficult thing to do—ask help from someone we dislike. But if we can make ourselves do it, we set in motion a whole series of human forces.

The forces or factors cited under Question 3 apply here, too, in reverse, but with the same values. We give him an opportunity to serve, with the pleasant feeling that accompanies it. Again, we're changing the flow. He has to look at us differently. The frame of reference is changed, and both he and we are part of it.

Yet, Question 4 carries additional features. The business of it being difficult to ask help from someone we dislike is something he—consciously or unconsciously—knows as well as we do. This is certain to change his view of us.

He'll be surprised, pleasantly, to have you turn to him for help. In a sense, you're saying, "You are superior to me in that you can do this for me and I can't do it for myself." You asked him, instead of someone else, to do it.

Your dislike has almost certainly been evident. So he has probably, and quite normally, developed a dislike for you, in return. But when you seek his help, his inclination will be, "You know, Charlie isn't such a bad guy, after all."

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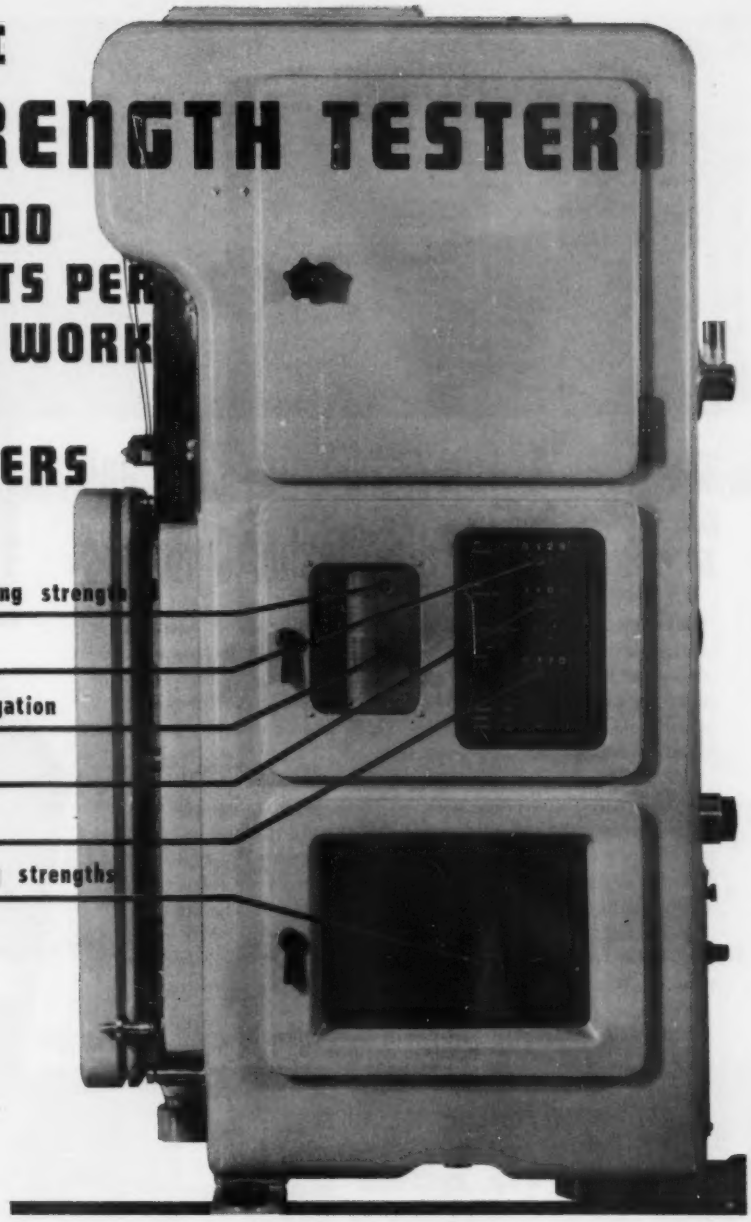

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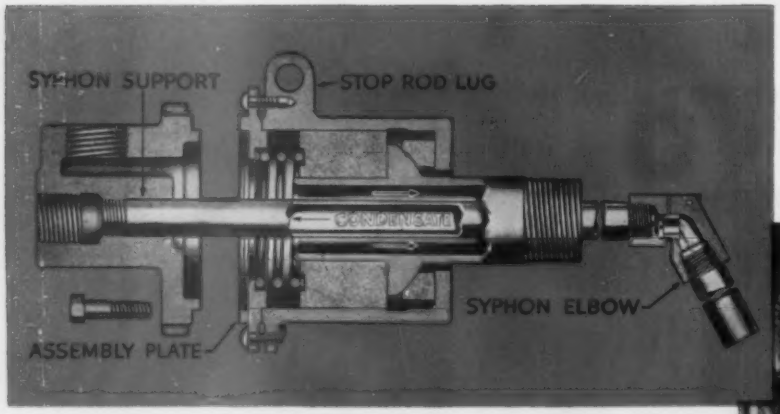
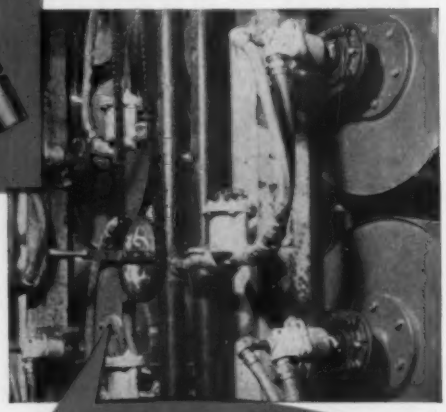


TYPE S-B2P Johnson Joint with Syphon Elbow. This is a completely self-supporting unit; the lug shown on body is for simple stop rod to keep joints from turning. Installation view shows these joints installed on dry cans.



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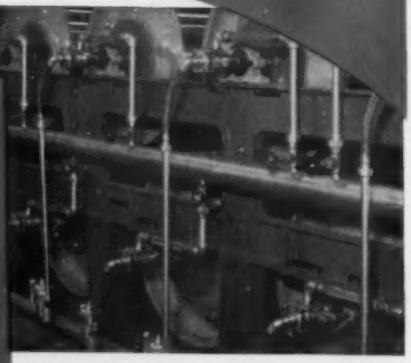

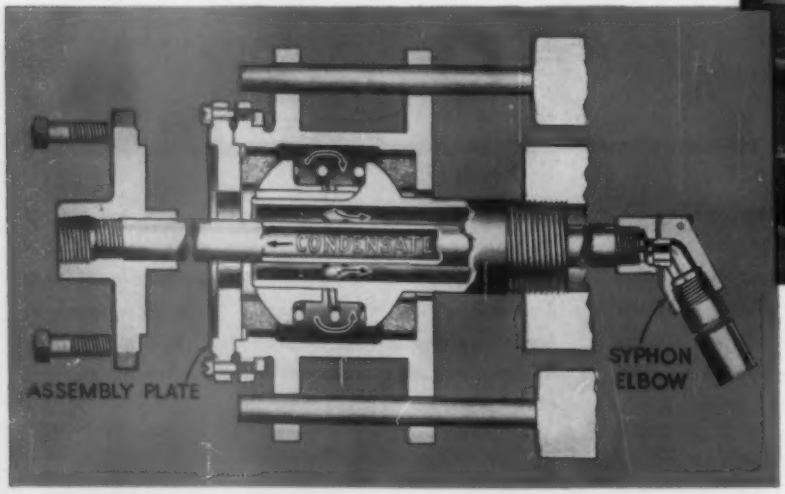

TYPE L-JSP Johnson Joint with Syphon Elbow. Has lugs on body for support rods, which carry all weight of body and connections, permit rotating assembly to "float" freely inside. Steam inlet is in side of body as shown in installation view of joints on slasher cylinders.

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TEXTILE WORLD
Vol. 111, No. 9
September 1961

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KNITWEAR FASHIONS

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IN CANADA: CHEMICAL DEVELOPMENTS OF CANADA, LTD., MONTREAL

News of the Month in . . .

Textile Chemicals

By ROBERT W. PINAULT, Associate Editor, TEXTILE WORLD

Light-Screening Agents Confined To Surface Give Best Results

If you keep light-screening compounds confined to the first 0.00001 inch of a fiber's thickness, you'll get greatly increased protection against the effects of sunlight, say Du Pont researchers. Total amount of protective compound should be about 0.4 gram per square meter of fiber surface.

Materials that respond well to treatment include nylon, polyvinyl chloride, cellulose acetate, polyethylene, and other organic polymers produced in shaped forms.

To get the screening compound on the surface, treat the fiber or film in the light-screen solution, or even dust it on in powder form. Then heat the material to a temperature above the melting point of the light screen but below that of the polymer to fuse the particles.

For example, you can apply a 5% solution of Uvinul 490 (General Aniline & Film Corp.) in methylethyl ketone to nylon, and then evaporate the solvent. Heat the goods for 30 minutes at 130±15 C. The fiber will absorb the Uvinul 490 to a depth of about 20% of fiber thickness. The protective effect against sunlight for one year is claimed to be extraordinarily high and superior to other methods, where the protective compound is distributed evenly through the fiber or film.

One Nylon Helps Another Become More Hydrophilic

If you treat hosiery or underwear made of nylon 6,6 with a polycaprolactam and a linear polyester, you'll impart excellent water absorbency to the goods. Here's the procedure to use:

Dissolve 3 grams of polycaprolactam in 100 c.c. of a concentrated solution of calcium chloride in methyl alcohol. Add 6 grams of a succinic acid-glycol polyester. Dilute mixture to 10 liters and add a small amount of a softening agent based on sulfonated fatty matter.

Work goods for 45 minutes in this liquor, then dry them at 100 C. or higher.

To check results, place a drop of water on the treated goods. It should spread out to 20 mm. in diameter in 1 second or less. Untreated fabric will normally take a full minute to produce a wetted area 5 mm. in diameter.

Benzophenone Derivatives Cut Light Damage on Nylons

You can protect nylon against deterioration from sunlight by using a simple treatment patented by General Aniline & Film Corp.

Pad goods at 340 to 365 F. in a 1% solution of 2:2'-dihydroxy-4:4' dialkoxy benzophenone in diethylene glycol for 5 to 15 seconds. Squeeze out excess liquor, then rinse and soap the goods in cold water.

Enough of the water-insoluble benzophenone compound is retained by the fiber so tensile strength is not lost after 600 hours Fade-Ometer exposure. The treatment also improves lightfastness of subsequent dyeings in some cases, and is fast to many launderings.

Swelling Agents Speed Heating of Triacetates

You can accelerate heat treatment of triacetate fabrics and increase the effect if there is a swelling agent present at the time you treat the fabrics.

Suitable swelling agents are benzyl alcohol, gamma-butyrolactone or acetamide. Typical procedure: Pad goods in a 20% solution of gamma-butyrolactone and heat them in air-free steam at 102 C. for 15 minutes. This process raises safe ironing temperature to 200 C. and improves resistance to glazing and dimensional stability. British Celanese Ltd. has been granted a patent on this heat treatment.

French Finishing Routine Cuts Pilling in Blends

You can practically eliminate pilling in Dacron-wool flannels in the popular 55/45 blend—even in single-ply yarn constructions—with this new finishing method:

First scour and dry the fabric. Then brush it very thoroughly on both sides to raise fiber ends that aren't firmly anchored in the yarn. Next, singe the goods carefully, melting down any projecting polyester fibers. But be careful not to affect the body of the goods.

After singeing, immerse the goods without tension in boiling water and then mill with soap and soda ash as usual. Rinse out fulling soap and dry the goods.

Now you heatset the fabric on a tenter at 180 C. with injected steam. Then moderately nap, shear, decatize, and press the goods. Societé Rhodiaceta, which developed the process, says this system produces a soft flannel hand, and that there is no pilling in use—even with single-ply yarns.

Now—a Flameproof, Nondrip Coating for Man-Made-Fiber Fabric

If coated with a new plastisol, nylon- or Dacron-type fabrics will not support combustion, nor will they drop off in molten drops when flame is applied to them.

You can make satisfactory coatings from polyvinyl chloride or polychloroprene, or the reaction products of polyethylene with chlorine and sulfur dioxide. You'll also need at least 8% antimony trioxide.

Such plastomers are finely dispersed in a plasticizer like tricresyl phosphate or dioctyl phthalate. The mix also includes an adhesive element to bond the plastisol to the fiber. Some adhesion inducers are toluene diisocyanate, or hexamethylene diisocyanate, or a combination of a polyester that carries OH groups with a diisocyanate.

It's also an advantage to add a small amount of lithopone, zinc oxide, or zinc sulfide to the mix.

Here's a typical coating formula you can use:

600 parts polyvinyl chloride.
480 parts dioctyl phthalate.
108 parts antimony trioxide.
84 parts lithopone.
2 parts pigment or dyestuff.

Give the goods three coats on each side. They will not drip under a gas flame, and will not continue to burn after the flame is removed.

Peroxide Treatment Stops Discoloring in Acetals

Now—you no longer have to worry about discoloring in durable finishes that are based on acetone-formaldehyde reactions.

Cause of the trouble is an unknown insoluble material left in the goods after treating and washing. But the fabric will not discolor on exposure to light and heat if after normal washing you treat the fabric for 10 minutes at 80 C. in a 1-vol. H_2O_2 solution containing 1 gram per liter of sodium silicate. Rinsing, scouring, and a final rinse complete the oxidizing treatment. You can also use sodium hypochlorite to oxidize the troublesome chemical, but the effect is not as good as it would be with peroxide.

Retarders, pH Control Improve Wool Dyeings

You can get level well-penetrated dyeings on wool with neutral-dyeing premetalized dyes if you use a retarder plus hexamethylene tetramine. Suitable retarders are water-soluble reaction products of formaldehyde and naphthalene sulfonic acids, thiophenols or phenols.

Set the dyebath with acetic acid and add a 1 to 2 mixture of retarder and hexamethylene tetramine. Base the amount of retarder on manufacturer's recommendation.

During the dyeing operation, ammonia is released from the hexamethylene tetramine at the boil, and the pH rises to 7 or a little better. The gradual change in pH plus the retarder control the rate of strike.

Pretreatment of Wool Makes Pleats Durable

You can improve the permanence of pleats in wool fabrics with a pretreatment developed by Unilever Ltd., Great Britain. The process involves breaking the salt linkages in keratin. They are weaker than the disulfide bonds but still affect the permanence of pleats.

To break a part of the salt linkage, treat the fabric for 15 minutes in a boiling ethyl or methyl alcohol solution with 0.28% of 10N hydrochloric acid. This process breaks the salt linkages, and the then-free carboxylic acid groups are esterified by the alcohol. In this form they don't affect pleating.

Wool fabrics given the pretreatment followed by steam pressing have much more durable pleats than those that have been treated only to break the disulfide bonds. In this latter treatment, unaffected salt linkages resist the formation of new bonds in the pleated conformation.

New Treatment Improves Acrylic Heat Resistance

If you're plagued with shade changes or yellowed whites because your acrylic-fiber fabrics are sensitive to high temperatures, try this sodium-formate treatment:

Treat the fabric in a 0.5% solution of sodium formate for one hour at the boil. Bath ratio is 50 to 1. Rinse and dry at 80 C.

Goods so treated will yellow only very slightly after exposure to 150 C. for 10 minutes. Dyeing properties of the fabric are not adversely affected. The discovery was made by Courtaulds, Ltd.

German Process Makes Water Repellent Durable

You can get durable water repellent effects plus fabric stiffening with formulas developed by Badische Anilin & Sodafabik A. G., Germany. Make the finishing bath by dissolving 5 parts of a copolymer based on 70 parts of methacrylamide and 30 parts of methyl acrylate in 950 parts of water. Stir in 50 parts of an aqueous dispersion containing 14 parts paraffin wax and 10 parts of alumina (or ziriconia) gel. This mixture is extremely stable.

Pad the goods in this solution and dry. An aftertreatment with formaldehyde followed by curing makes the finish insoluble, thus resistant even to boiling water. Suggested uses: tarpaulins, tent fabrics, umbrellas, and raincoats.

Premetalized Dyes Boost Triacetate Washfastness

If you treat freshly spun, washed (but not dried) triacetate fiber with neutral dyeing premetalized dyes, you can get excellent washfast dyeings. A hot-water rinse will remove any excess color.

The dye does not migrate to the surface of the fiber while it is being dried. And many dyes of the Cibalan, Irgaset, and Irgalan series can be used. British Celanese Ltd. holds a patent for the process.

Resin-Polyethylene Oxide Finish Eliminates Man-Made-Fiber Static

You can eliminate static from polyester- or nylon-fiber fabrics with a finish developed in Germany.

Boehme Fettchemie GmbH reacts 1 mole of melamine with 6 moles of formaldehyde and 2 moles of polyethylene oxide at 85 C. for 10 minutes, then heats the mixture until water distills off and the internal temperature rises to 130 C.

The company pads the fabric in a liquor carrying 15% of the above compound plus 0.4% ammonium nitrate. It dyes the goods at 80 to 100 C. The goods need no further curing.

Tests show that a polyester or nylon fabric finished in this way will only generate 5 volts per square centimeter in a standard rubbing test. Untreated goods will build up 500 to 5,000 volts per square centimeter.

The finish on the fabric is retained after 20 launderings at 40 C.

You can also kill static on polyacrylonitrile fabrics by treatment in an 8% solution of a precondensate made from 0.75 mole melamine, 5 moles formaldehyde, 0.25 mole urea, and 1.5 moles polyethylene oxide (mol. wt. 1000). Use 0.2% acetic acid in the treating bath to aid final condensation of the resin.

Now—Reactive Vat Dyes: Swiss Say They're Easy to Apply

A hybrid dye—the result of crossing a vat dye with the now-familiar halogenated 1:3:5 triazine nucleus—has vat dye advantages plus easier application methods.

Ciba, Ltd., Basle, Switzerland, applies the process to vat dyes of the anthraquinone, perinone, and pericarboxylic-acid imide series. It adds water solubility by attaching a sulfonic acid group to the vat dye. Then Ciba adds the 1:3:5 halogenated triazine nucleus by a conventional condensation procedure.

You do the dyeing job in a bath with the dissolved dye, Glaubers's salt, and a mild alkali such as TSP. The alkali neutralizes the acid that's split off as the dye reacts with the cellulose. Dye at 25 C. and toward the end of the dyeing add hydro to improve the exhaust, and raise the temperature to 60 C. Add alkali to counteract the hydro. Follow with the usual oxidizing and soaping to complete the process.

Oxidizing Common Bases Means Better Blacks for Nylon

You can get good fast blacks on nylon by dyeing it with one or more of several bases, then oxidizing the base with chlorine.

Suitable base materials for this process include p-amino diphenylamine, 1:5 diamino naphthalene, p-anisidine, 2:4 diamino-diphenylamine and 4-methyl-4′ amino-diphenylamine.

A typical procedure: Dye the fabric at the boil for 2 hours in 12% (on weight of goods) p-amino-diphenylamine, 3% 2:4′-diaminodiphenylamine, and 3 grams per liter of diphenyl ether (a dispersing agent). Add 1½ grams per liter of an anionic surfactant such as alkyl-phenol polyglycol ether sulfate, and ½ gram per liter of glue.

After applying the base, rinse the goods in cold water, and treat them at pH 4 in a bath that contains sufficient sodium hypochlorite to yield 0.9 gram per liter of active chlorine. Work the goods at 65 F. for 20 minutes, then at the boil for 10 minutes. Result: a deep, fast black. Farbewoerke Hoechst A. G. developed the process.

Did You Know . . .

. . . that lower dyeing temperatures may help good unions between top and body of nylon hosiery? Larger denier yarns, often put in tops, will level out better with finer yarns if you dye slowly at 60 C.

■

. . . that organo-tin or germanium compounds added to the melt will reduce static accumulation in nylon or polyester fibers? Vereinigte Glanzstoff-Fabriken A. G. finds that 1 to 2% of a distannate or digermanane compound does the trick. Typical is hexacylohexyl digermanane, $(C_6H_{11})_3 - Ge - Ge - (C_6H_{11})_3$. Acrylic fibers also can be treated by the addition of hexa-paramonochlorophenyl distannate to the spinning solution of dimethyl formamide.

■

. . . that pretreatment with an optical bleach works better than inclusion of the whitener in the peroxide liquor? Many plants now make it a practice to pad on the whitener, squeeze out excess liquor, rinse, squeeze out again, and then move to the peroxide bath to get better shade control and more uniform results.

■

. . . that Procinyl-type reactive dyes give prints of excellent washfastness on triacetate fibers? The dyes are not likely to combine with the triacetate because all three hydroxyl groups in triacetate are acetylated. Extend the steaming period to 30 minutes at 10 psi. and you'll get good color yields. What's more, the dyes won't sublime. Follow normal disperse-dye recipes with the addition of urea to improve color value.

■

. . . that molecule size is a factor in determining the wetfastness of acid or milling-type dyes? Good wetfastness of Polar or Carbolan types is due to their large molecules—much larger than those of ordinary level-dyeing acid dyes.

What's New in Dyes and Chemicals

Basic Dye

Sevron Yellow 2R . . . produces red-yellow shades on Orlon and other acrylic fibers. It's also used for Dacron Types 62 and 64. Shades are fast, and the dye has good solubility and good hydrolytic stability over a wide pH range. Solutions are stable to high temperatures. The color is good for deep shades because of its fast dyeing rate and good exhaust. E. I. du Pont de Nemours & Co., Inc. **(Circle D-1 on Reader Service Card)**

Softeners

Tennesoft 23-59 and Tennesoft 29-73 . . . in liquid form, are recommended for softening cottons and cotton blends with other fibers.

The softeners improve absorbency of fabrics and provide a soft hand. They don't discolor as a result of heat or ultraviolet light, and are compatible with optical bleaches, resins, and bacteriostatic agents. Tennessee Corp. **(Circle D-2 on Reader Service Card)**

Mercerizing Assistant

Sul-Fon-Ate BL Acid . . . functions as a wetting and penetrating agent in caustic solutions of up to 25% strength. It is water soluble and its wetting power is not affected by hot caustic solutions or normal cotton impurities or sizing material. The product is not based on cresylic acid. Tennessee Corp. **(Circle D-3 on Reader Service Card)**

Disperse Dye

Latyl Diazo Black ND . . . is especially suited for pressure dyeing of Dacron stock, top, tow, and yarn. The dye contains both base and developer, which shorten dyeing time. Over-all fastness of dyeings is excellent, particularly to light and wet processing. The dye is also suggested for Acrilan, Arnel, Kodel, nylon 6,6, and Vycron. E. I. du Pont de Nemours & Co., Inc. **(Circle D-4 on Reader Service Card)**

Acrylate Monomers

Methyl Acrylate and Ethyl Acrylate . . . are now available with exceptionally low inhibitor content and exceptional stability to extreme storage conditions. Inhibitor content is 15 ppm. instead of the more common 200 ppm. inhibitor concentration. Storage at 130 F. for at least 30 days does not induce polymerization. On the other hand, the low inhibitor content is expected to shorten polymerization time in use and improve total conversion. Rohm & Haas Co. **(Circle D-5 on Reader Service Card)**

Disperse Dyes

Foron Red FL . . . is an ultradispersed patented dye that is said to be the first true red of the disperse-dye type to have good all around fastness properties. **Foron Rubine GFL** (ultradispersed) produces rubine shades that are fast to light, washing, sublimation, perspiration, pleating, and drycleaning. **Foron Scarlet BWFL** (ultradispersed, p.a.f.) is a bluish scarlet with daylight fastness of L 6-7. **Foron Yellow Brown 2RFL** is also an ultradispersed patented dye that is recommended as a base for tan or brown shades on polyester or polyester-wool blend fabrics. The red, rubine, and scarlet are used in high-temperature dyeings. Sandoz, Inc. **(Circle D-6 on Reader Service Card)**

Resin Emulsion

Piccopale A-55 . . . is a hydrocarbon resin emulsion recommended as a reinforcing resin for latex formulations. If you use up to 20% of this resin to replace latices, the resulting product will cost less, have higher tensile strength, improved modulus of elasticity, and increased tack of uncured films. It is compatible with all types of latex such a GRS, SBR-2000, vinyl-toluene, butadiene, and natural rubber. Pennsylvania Industrial Chemical Co. **(Circle D-7 on Reader Service Card)**

Flame Retardant

Pyrocrest . . . is an organo-phosphate compound recommended for flame-proofing of cellulosic- and animal-fiber goods. The product is a water-white, water-soluble liquid of low viscosity. Applied in amounts varying from 10 to 30%, it is effective in stopping flaming and glowing after the source of heat is removed. It will not cause efflorescence (salt bloom) on aging and imparts a soft hand to treated fabrics. Crest Chemical Corp. **(Circle D-8 on Reader Service Card)**

Resin Base

Solar Urea . . . produced in prilled form by improved manufacturing methods is said to offer all the advantages of crystalline urea. Solutions are clear, and biuret and ash content are held to low limits. The product also has the free-flowing characteristics of crystalline urea. Sohio Chemical Co. **(Circle D-9 on Reader Service Card)**

Antistatic Lubricants

Emerstat 7450 and Emerstat 7451 . . . are nonionic lubricants that improve fiber running properties and reduce static buildup. They are particularly useful in high-speed operations such as the Turbo Stapler or Pacific Converter, or in any tow-to-top process involving natural or man-made fibers. Emerstat 7451 is used in producing carpet yarns. Emery Industries, Inc. **(Circle D-10 on Reader Service Card)**

SILICONE NEWS from Dow Corning

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fabric protected with SYL-MER® SILICONE FINISH DOW CORNING CORPORATION

SYL-MER®—made with Dow Corning Silicones—gives fabric a combination of properties unmatched by any other single textile finish:

Durable water repellency
Luxurious hand
Resistance to water-borne stains
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Improved sewability
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Whatever your fabric, Syl-mer will improve it. There's a Syl-mer finish for every fiber and fabric.

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Be sure fabric is prepared for finishing, i.e., free of sizing, wetting agents or dyeing assistants. Attach sample to coupon and send to us **in Greensboro.** Treated and untreated samples will be returned to you promptly.

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Textile Laboratory, Dept. A 521a
Greensboro Division
Dow Corning Corporation
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Gentlemen:
I have enclosed a sample (½ to 1 yard) of our fabric quality no. ..... for your Syl-mer treatment. Our finishing method is ☐ padding ☐ exhausting.

Fiber content of this sample is .....

Name ..... Title .....

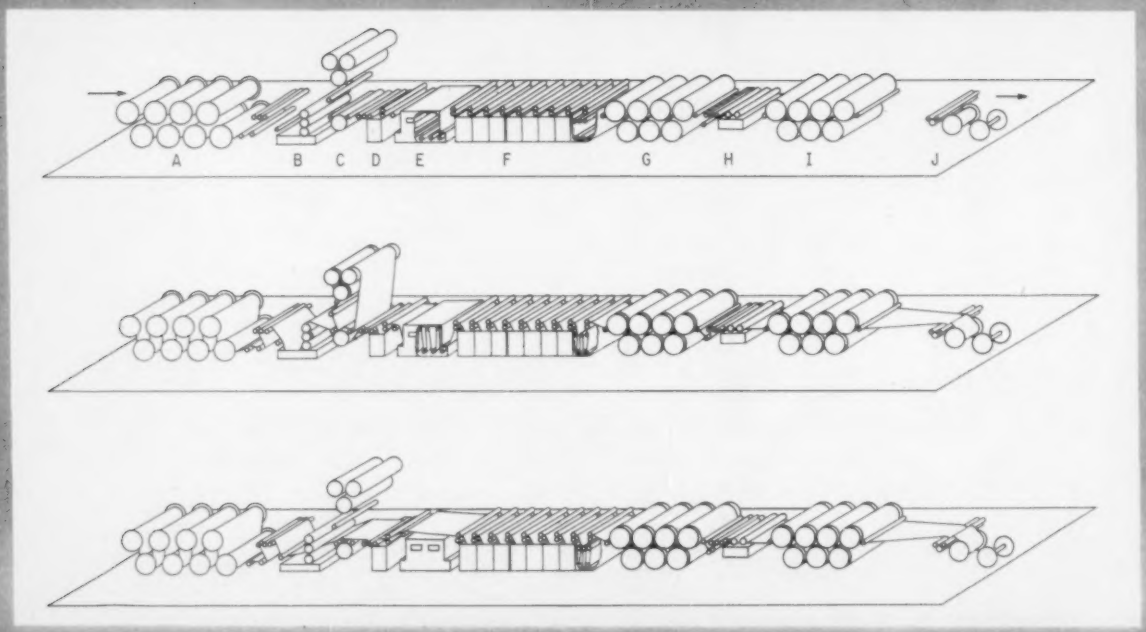
Company ..... Address .....

City ..... Zone ..... State .....

A TEXTILE WORLD UPDATE

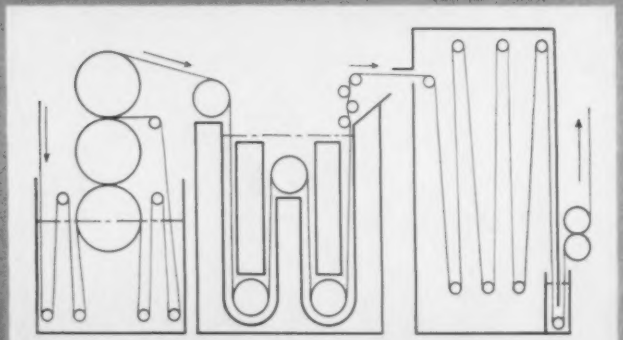
What You Should Know About

Here Are Three Ways to Vat Dye Cotton Warps



WARP DYEING and slashing is continuous on this Unistel-Batchelder range. In the top drawing, you'll find: A—section beam creel; B—pigment padder; C—dry cans; D—chemical padder; E—steamer; F—oxidizing and soaping range; G—dry cans; H—size box; I—dry cans; J—batcher. The middle drawing shows the threading arrangement for pad-steam dyeing. The bottom drawing indicates the threading arrangement used for solution dyeing.

BEAM DYEING requires this type of machine. Each of these twin kiers holds about 300 pounds of yarn. Some plants hook up four to eight kiers to dye large amounts of yarn in one uniform shade.



PAD-STEAM method of handling ball and log warps requires the equipment shown in this schematic. Apply the pigment in the pad, reduce in the Williams unit, and develop the color in the steamer. Follow with the usual oxidizing and soaping.

Vat Dyeing Today — Part 6

Here's Installment 6 of this helpful refresher series. It outlines the principal methods of dyeing cotton warps with vat dyes, points out advantages and pitfalls. Brings you typical working formulas, too.

YOU'LL GAIN four big advantages by dyeing yarn in warp form:

- **You'll avoid** the 10 to 15% loss of colored waste that occurs when yarn is made from dyed stock.
- **You'll cut** the time lag between receipt of an order and weaving.
- **You'll eliminate** the huge storage facilities needed for dyed stock.
- **You'll have** a flexible system. For you can dye warp yarn several ways (for typical ways, look at the two line drawings and the one photo on the facing page) and in several forms—in short chains, in long chains, as ball or log warps, in sheet form from section beams, as a mass contained in a basket with perforated walls, or wound on perforated eye beams.

A set of warps consists of enough individual yarns to be woven into the full width of cloth. For example, you can weave 36-in. wide cloth with a warp count of 50 ends per inch from a loom beam with 1,800 individual warp yarns. You can facilitate handling during dyeing by dividing a set of warps into several warps. (In this example the division would probably be four warps, each with 450 yarns.)

You may use chain dyeing where the manufacturing setup requires a relatively large quantity of yarn in a few shades that you must weave into very level solid shades or stripes. You can quill chain warps directly to filling cops, thus cut costs of preparing filling yarn. You can get extremely good uniformity of solid shades when both the warp and filling are from yarn dyed in the same operation.

By the late O. W. CLARK
Dyes Department
American Cyanamid Co.
Bound Brook, N. J.

METHODS MOST USED

When you dye warp yarn by the usual long-chain or short-chain method or from ball or log warps using a reduced vat dye bath, fastness to washing and crocking is considerably less than is inherent in vat dyes. You'll get poor dye penetration into yarn and fiber. Why? Because the time of contact of yarn and bath is very brief. And because during multiple runs through the dyeing range, the dye fixes chiefly on the exterior surface of the yarn.

You can get excellent penetration and fastness four ways:

1. By padding the warps through a dispersion of vat dyes, then passing them through a bath containing reducing chemicals, and finally leading them through a steam chamber, where reduction and fixation of dye occur in about 15 seconds. Follow this method in range by suitable slashing operations so that natural yarn enters the machine at one end, and dyed and slashed yarn leaves at the other end wound on a loom beam and ready for weaving.

2. By padding the warps through a dispersion of vat dyes, and then passing them through a high-temperature bath that contains reducing chemicals. Reduction and fixation occur in 15 to 20 seconds.

3. By combining dyeing and slashing, you'll get light shades of adequate fastness for certain end uses at a low over-all cost. To do this, feed warp yarn in sheet form from a creel of section beams through a modified slasher that contains reduced or soluble vat dye as well as size in the padder box. The dyed and slashed warps leave the machine ready for weaving (facing page, upper drawing). Warp yarns dyed this way usually go into inexpensive bedspreads, draperies, etc.

4. By dyeing in circulating pressure machines similar to those already described for package dyeing. If your mill requires a wide variety of shades in relatively small poundage per shade, you'll find it advantageous to dye chain warps or dye beams by this method. Here's the procedure: Plait chain warps into annular metal baskets with perforated walls. Put the baskets in circulating pressure machines and circulate the dye bath through the yarn.

A dye beam is a large-diameter metal spool with a perforated core on which warp yarn is wound. Put these dye beams in circulating machines and circulate a dye bath through the yarn (facing page, lower left photo). The maximum weight of yarn per beam that can be satisfactorily dyed with vats is 300

pounds (usually less is dyed). A typical beam-dyeing machine holds 2 or 3 beams. With 4- and 6-beam machines, you can dye a full set of section beams in one operation in the same dye bath. These machines eventually may replace chain dyeing.

SHORT-CHAIN DYEING

You'll want to use short-chain warps for small dye lots—about 750 pounds or less. (A set of long-chain warps weighs up to 7,500 pounds.) You'll find such small dye lots chiefly in small mills that use the dyed yarn for webbing, for awning stripes, or for toweling stripes. You can make a typical short chain by doubling back a 3,000-yd. warp, containing 400 to 500 yarns, twice on itself to give a short chain 750 yards long. To prevent tangling, wrap a cotton thread spirally around the warp before it is doubled back. Until recently, short-chain warps were often dyed in a 1- or 2-box machine, but 4- to 6-box machines are common today.

Each passage through the machine is called an end. You'll need 11 to 15 or more ends to vat dye a short-chain warp in a 1-box machine. In a 4- or 6-box machine, 8 to 10 ends will be enough. Run the warps through the machine and plait them into trucks. Thus the warp will pass through the machine in opposite direction on alternate ends, the last portion through on one end being the first portion through on the next end. You'll need 19 minutes for each end at 40 ypm.

Because absorption rates of individual dyes vary, you'll need considerable experience to dye combination shades levelly. Whenever possible, standardize shades on the base of a single dye formula.

CIRCULATING MACHINES

Dyeing short-chain warps in an annular basket in circulating machines is becoming popular today. This way you get better dye penetration into the fiber and better dye fastness than by dyeing on a range using a reduced dyeing procedure. You can protect the physical condition of the yarn better by dyeing in a circulating machine: There's no alternate reduction and oxidation and the yarn is not in motion.

The machine is the usual circulating type. But in place of the package carrier or a dye beam, use an annular basket with perforated walls. Plait the warp into this basket, then load it into the machine. Seal the top of the basket with a cover so circulation takes place horizontally with reversing-flow cycles.

MULTIPASS DYEING

In the multipass method, you use a procedure similar to that described for short-chain dyeing. Do not double ball or log warps, but do double chain warps so that a 7,500-yd. warp is reduced to 3,750 yards for dyeing. Since a single end for a 3,750-yd. warp requires about 94 minutes when run at 40 ypm., most dyers use 4- or 6-box machines in long-chain dyeing. Even so, the production rate is slower than that of single-pass methods. You'll need 36 hours for wetting, dyeing, and soaping for a 6-end procedure for six 15,000-yd. ball warps that are running simultaneously.

One of the main differences between short- and long-chain warp dyeing is the length of time that the dye bath is in use. In ball-warp dyeing you may need 24 hours, and when dyeing a 3,750-yd. chain warp you may need from 5 to 10 hours. Hence the stability of sodium-leuco compounds of vat dyes is important in shade control. As far as possible, you should use only very stable dyes.

Introduce the stock vat in several portions at suitably spaced intervals. This procedure minimizes the total length of time it is held in reduction. Slow-exhausting dyes are preferable, and in a combination shade the individual dyes should exhibit similar exhaust characteristics. Depending on the exhaust rates, feed in the end bath an amount equal to 2½ times as much dye as in the starting bath.

The exact balance of feeding and starting proportions will vary with the type of yarn, the operating conditions, and the dye formula. You need experienced and skillful supervision to obtain satisfactory dyeings, especially when using new shades.

REDUCED DYEING

This procedure is continuous. It uses a reduced dye bath and a high-temperature booster bath to give better penetration and fastness than the previous methods. With this method you can dye a set of 15,000-yd. warps in 6 to 12 hours, depending on your equipment.

Pass the warps through a reduced dye bath in a large box equipped with multiple immersion rolls and a set of squeeze rolls at the delivery end. The yarn absorbs dye from the bath, then passes through a box containing a solution of soda ash, sodium hydrosulfite, and salt at 212 F. This procedure prolongs and accelerates the dyeing action and thereby improves penetration and fixation of the dye. You can use Williams units instead of plain dye boxes (p. 80, lower right drawing).

Use two formulas before dyeing:

1. A starting-bath formula—You can figure this in the lab. Determine the dye concentration (in grams per liter) that will give the desired shade when a 10-gram skein is immersed in a 1-liter dye bath. The immersion time in the dye bath is the same as the time spent by the warp in the dye box of the warp-dyeing range. You can convert this result to ounces per gallon by dividing by the figure 7.5.

2. A feed-rate formula—Here's the lab method: Match the shade by dyeing a 10-gram skein in a 200-ml. dye bath for 45 minutes, completely exhausting the dye with salt. By referring to a table of exhaust data, or by estimating, calculate amount of dye removed from the mill dye bath by a given weight of yarn.

Calculate the dye feed rate from the rate at which the weight of yarn passes through the dye bath. This amount of dye is dissolved in the quantity of liquor removed by the yarn in the same time. Thus a constant dye-bath level is maintained. Feed most dyes into the reduction bath as a dispersion, since finely dispersed particles reduce and dissolve rapidly in the agitated bath. In this way, you eliminate the problem of leuco stability in a stock vat.

For an example of reduced dyeing, see the panel on the facing page.

Here's an Example of Procedures in Reduced Dyeing

SHADE . . . Faded blue.

MATERIAL . . . Twenty-four 7,000-yd. warps. Total weight, 10,000 pounds.

Procedure:

Speed is 40 ypm. Pick-up by dry warps entering the dye bath is 50% (equals 5,000 pounds or 600 gallons of liquor). Dye-bath volume is 1,000 gallons. Immersion time is 45 seconds. At a pick-up of 50% and a speed of 40 ypm., twenty-four 7,000-yd. warps absorb 600 gallons in 175 minutes, or 3.45 gpm.

Here are specifications for starting bath and feed in Box 1:

BOX 1

(Temperature: 140 F.)	Starting Bath (1000 gallons)		Liquid Feed (600 gallons)		Dry Feed
	Ounces per Gallon	Pounds	Ounces per Gallon	Pounds	Pounds
Vat Blue 6, C.I. 69825	2.000	125	8.00	300	—
Vat Blue 18, C.I. 59815	0.352	22	3.60	135	—
Calcoloid Black PB Double Paste	0.095	6	1.33	50	—
Caustic potash	2.000	130	0.08	30	—
Sodium hydrosulfite	1.500	95	—	—	22
Anionic wetting agent	0.800	50	0.80	30	—

Use caustic potash instead of caustic soda because solubility of potassium-leuco compound of dye is higher. Feed the dye in pigment form because minimum concentration, limited by liquid pick-up, is about 12 ounces per gallon—well beyond the leuco solubility of the dye required by the formula. Feed dry hydro at 2 ounces per minute. Exact rates of caustic soda and hydrosulfite feed, of course, will vary with the conditions in a specific plant and must be established by titration.

The soda-ash booster, in Box 2, is made up as follows:

BOX 2

(Temperature: 212 F.)	Starting Bath (600 gallons)		Dry Feed
	Ounces per Gallon	Pounds	Ounces per Minute
Soda ash	5.00	200	8.0
Caustic soda	0.25	10	—
Salt	8.00	300	16.0
Sodium hydrosulfite	1.00	38	—

Feed Box 2 every 3 minutes with 1½ pounds of soda ash and 3 pounds of salt. Follow by rinsing, oxidizing, soaping, and drying equipment in the range.

PIGMENT DYEING

You can save money with the single-pass pigment methods of dyeing ball and log warps. In addition, these methods give superior penetration, levelness, and fastness. You'll need rather expensive machinery, but production is high and labor cost is low.

Use either of these procedures:

1. Pad the warps through a dispersion of vat dyes and then pass them through a small-volume saturation device to absorb reducing chemicals. Then pass them through a steam chamber to fix and reduce the dye.

2. Pad the warps through a dispersion of vat dyes and then pass them through a small-volume bath containing chemicals to reduce and fix the dye on the yarn. You'll get uniform shades more easily by pad-steam than by pad high-temperature-reduction methods:

Example: Pad-Steam Method

SHADE . . . Blue.

MATERIAL . . . Eighteen 15,000-yd. warps of 12s/1 cotton yarn. Total weight, 11,800 pounds.

MACHINE . . . Continuous range: 3-roll 15-ton padder, chemical saturator, steamer, 8-box wash range, dry cans. Speed, 40 ypm.

Procedure:

Pigment pad at 12-ton pressure, 60% pick-up through the solution:

(Temperature: 210 F.)	Start (Ounces per Gallon)	Feed (Ounces per Gallon)
Vat Blue 6, C.I. 69825	8.0	6.67
Anionic wetting agent 25%	1.0	1.00

Put the unscoured warps into the passing bath as flattened out as possible. When they leave the padder, put them directly into a 100-gal. chemical saturator containing the following:

(Temperature 90 F.)	Start (Ounces per Gallon)	Feed (Ounces per Gallon)
Caustic soda	3.0	3.0
Sodium hydrosulfite	3.0	3.0
Dye from pigment padder	64.0	

. . . *Turn the page*

Operate the chemical saturator without squeeze rolls. Pick-up is 275%. Enter the warps directly into the steamer, operated at 220 F., and steam them for 15 seconds. Pass the dyed warps through rinsing, oxidizing, and soaping boxes, and over dry cans, thus completing the procedure.

SLASHER DYEING

You can use either the reduced method or a method using soluble vat dyes for slasher dyeing. Either way, you can produce light shades on warp yarn for fabrics used for bedspreads and draperies, which are only occasionally laundered. But you will find no example of these methods in this article because the formulas and procedures vary widely with different equipment and conditions in individual mills.

For the reduced method, reduce the vat dye in a stock vat and then add it to the slasher mixture. Caustic soda and sodium hydrosulfite concentrations in the slasher will vary from ½ to 1 ounce of each per gallon of size, depending on the specific formula.

If there is not enough wetting agent in the slasher mixture, you can improve the penetration and fixation of the dyes by adding more. Feed dyes to the slasher in proportion to their exhaust rates.

When equal weights of caustic soda and sodium hydrosulfite are in the dye bath, the reactions between oxygen and carbon dioxide in the air and hydrosulfite and caustic soda in the cloth (after it leaves the impregnation squeeze rolls) quickly reduce the alkalinity to a low figure. Therefore you can move the cloth directly to the slasher cans. Dry the dyed and sized warp on the slasher cans as usual, and then move them to the weaveroom.

If you use a method with soluble vat dye, add a solution of soluble vat to the slasher mix. This solution also contains the sodium nitrite needed to assist later development of the shade. After weaving, run the cloth, containing the yet undeveloped warp shade, through a 3% solution of sulfuric acid. This is the usual procedure for developing soluble vat dyes.

You can try another method for which machinery exists but which has not yet been widely adopted. With this method you'll use the Unistel-Batchelder machine. You'll obtain dyeings of excellent fastness in a full range of shades. The method combines pad-steam dyeing with slashing in a continuous process. You take yarn from a creel of section beams, pad it through a dispersion of vat dye, then saturate it with reducing chemicals. Pass it through a steam chamber to reduce and fix the dye, then through rinsing and drying equipment. Next, move it to a slasher followed by a dryer. You can doff loom beams without slowing down or stopping the machine (p. 80, upper drawing).

BEAM DYEING

Package and beam dyeing have many similarities in principle and in procedure, but beam dyeing is more troublesome. Beams are wound with a parallel lay instead of the angular lay used for packages, and therefore are much less permeable. Correct winding of beams is a critical operation, and satisfactory precision winders have become available only in recent years.

When carefully maintained and skillfully operated, modern winders produce dye beams of equal density throughout their length and cross section. The aim in beam winding: Produce a beam of uniform density that is soft enough to permit the desirable rate of liquor flow without offering excessive resistance or without encouraging channeling. Consider yarn construction, total yardage on the beam, and the number of ends per beam when setting the speed and tension of the winder. Consider them again when setting up the operating conditions for the dyeing machine.

Watch out for "blown" beams, where the dye bath channels through a soft spot due to poor yarn winding or surges in the bath circulation. They are a constant danger in beam dyeing. You can establish predetermined conditions of flow and pressure for each important variation in dye-beam constitution with variable-speed pump drives and flowmeters. You'll find these devices especially useful when you use the same machine to dye beams, packages, cheeses, etc.

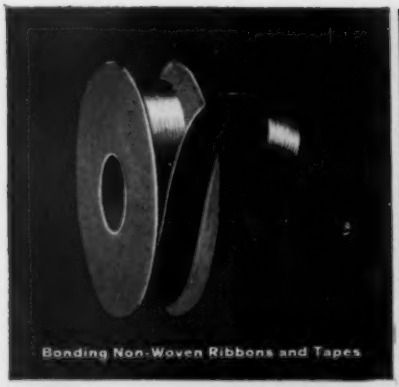
Sudden changes in pressure or temperature, insoluble impurities or hardness in the water, insoluble impurities in the dye, and certain constituents found in some cotton yarns can also cause blown beams.

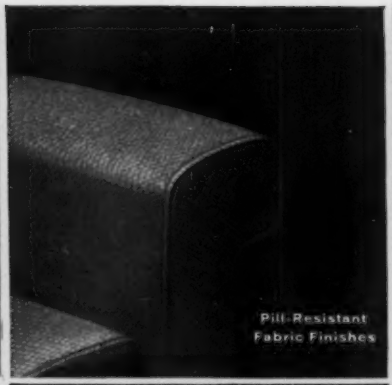
Although a high rate of liquor flow is conducive to level dyeing, you need considerable pressure to drive the liquor through a beam. Since excessive pressure readily blows a beam, you'll have to compromise and keep the maximum pressure in beam dyeing below 40 pounds gage reading. In typical beam-dyeing practice, this pressure gives a liquor flow rate of between 1½ and 2 gpm. per pound of yarn. With suitable dyes and procedures, it results in satisfactory dyeings.

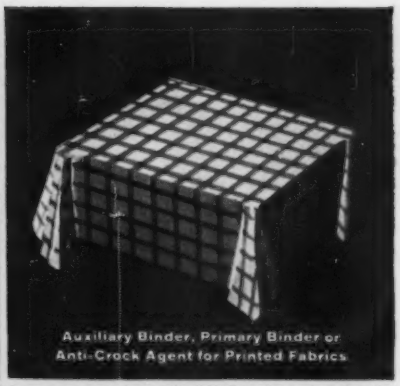
HELP FROM STEAMING

Before subjecting the yarn to a liquid bath, you probably will follow the custom of percolating steam through the yarn in an inside-out direction for 10 to 15 minutes. Steaming wets the yarn and allows winding tensions and beam density to undergo adjustment before the beam is subjected to the high pressure and to the hydraulic effect present during forced circulation of a liquid bath. This way, you can reduce the risk of blown beams.

Sometimes you may want to boil out yarn with dilute acetic acid to remove polyvalent metal cations, rather than use alkaline, detergent, or wetting baths that may precipitate these cations as insoluble compounds. The resistance set up by these precipitates may cause blown beams or dye resists. You can reduce the danger by using a good sequestering agent in this bath.


Bonding Non-Woven Ribbons and Tapes


Pill-Resistant Fabric Finishes


Auxiliary Binder, Primary Binder or Anti-Crock Agent for Printed Fabrics

Scrim Laminate Adhesive

Clear Carpet Backing Material

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NEW WAYS
the textile industry is using RHOPLEX acrylic resins to improve product quality

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RHOPLEX

Leon Moore (above, left), one of 12 Du Pont textile bleaching representatives, discusses a new Du Pont bleaching process . . .

Here's how Du Pont experience improve product quality

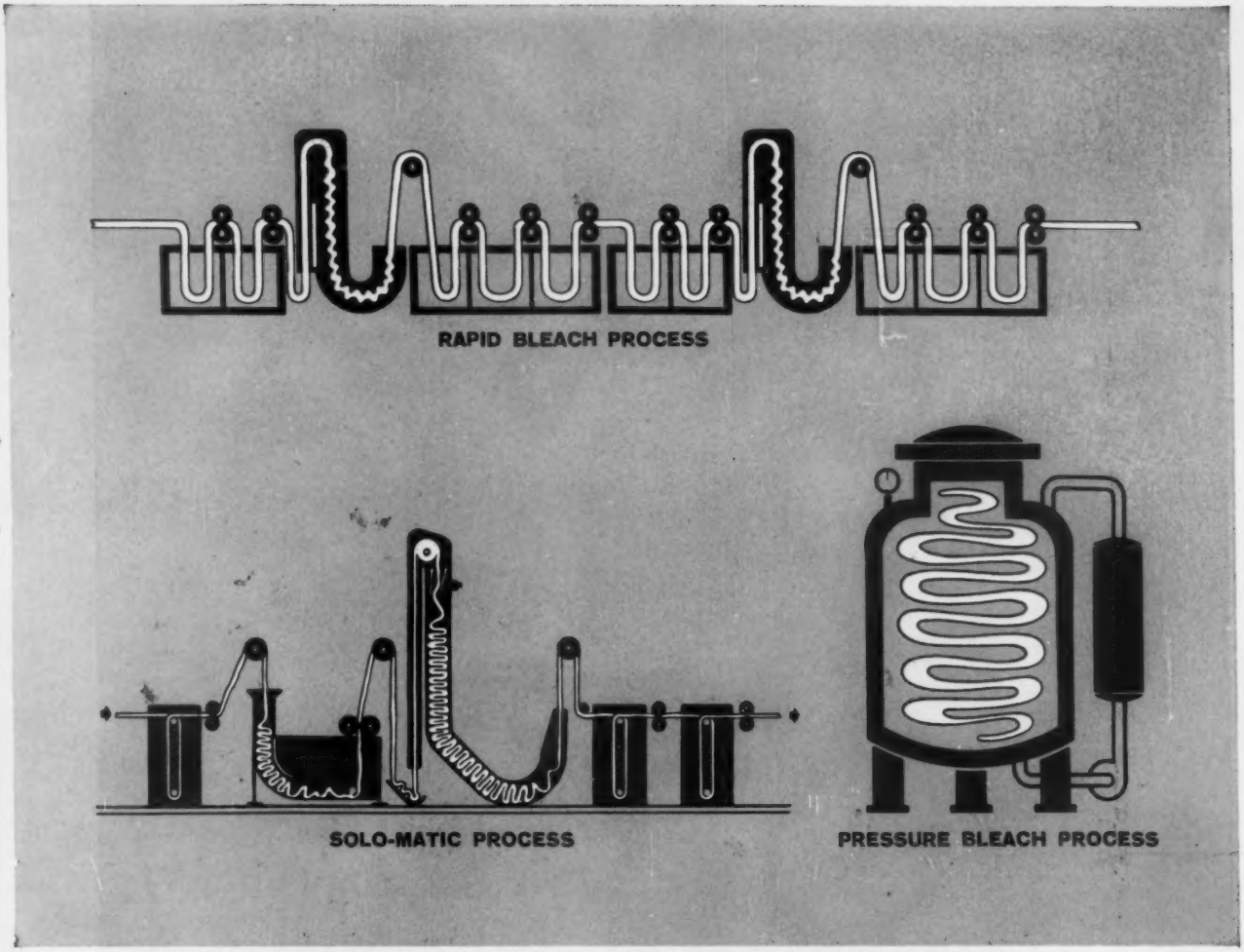
Du Pont technical representatives can bring years of practical textile mill experience to bear on your bleaching operations—and often will suggest ways you can cut costs or improve efficiency. For example, take Leon Moore (pictured above, left), one of Du Pont's twelve highly qualified bleaching specialists. He can help you maintain your processes at peak operating efficiency and also show you how one of Du Pont's new cost-cutting processes can economically fit into your present operation.

If it looks as though a continuous or semi-continuous system may solve your bleaching problems, Leon might suggest *Rapid Bleach*, the process that lowers cloth storage time to 8 minutes in each J-box, improves dyeing quality and eliminates rubmarks, bruises and creases.

If you bleach by a multi-stage, high-speed system, he can explain the advantages of *Solo-Matic* bleaching. This single-stage process can double your production in the same space, using present equipment—is currently performing satisfactorily in many mills.

Perhaps you're interested in kiers or package systems. Then Leon could tell you about *Pressure Bleach*, which cuts process time up to 50%, and doubles your production in the same space, using your present equipment.

ALBONE® hydrogen peroxide • **SOLOZONE®** sodium peroxide • **PERDOX®** sodium



These 3 Du Pont processes can help you save time, money and space. Major advantages are listed below.

and service help textile mills ... cut processing costs

Leon Moore, or the Du Pont technical representative in your area, is backed by an experienced technical staff in Wilmington, Delaware, and a new Sales Technical Laboratory. Here, laboratory scale bleaching equipment designed to duplicate actual field conditions is used to help find practical answers to many of your bleaching problems. And Du Pont's new, modern plant in Memphis, Tenn., assures you fast, reliable deliveries of high-quality peroxides.

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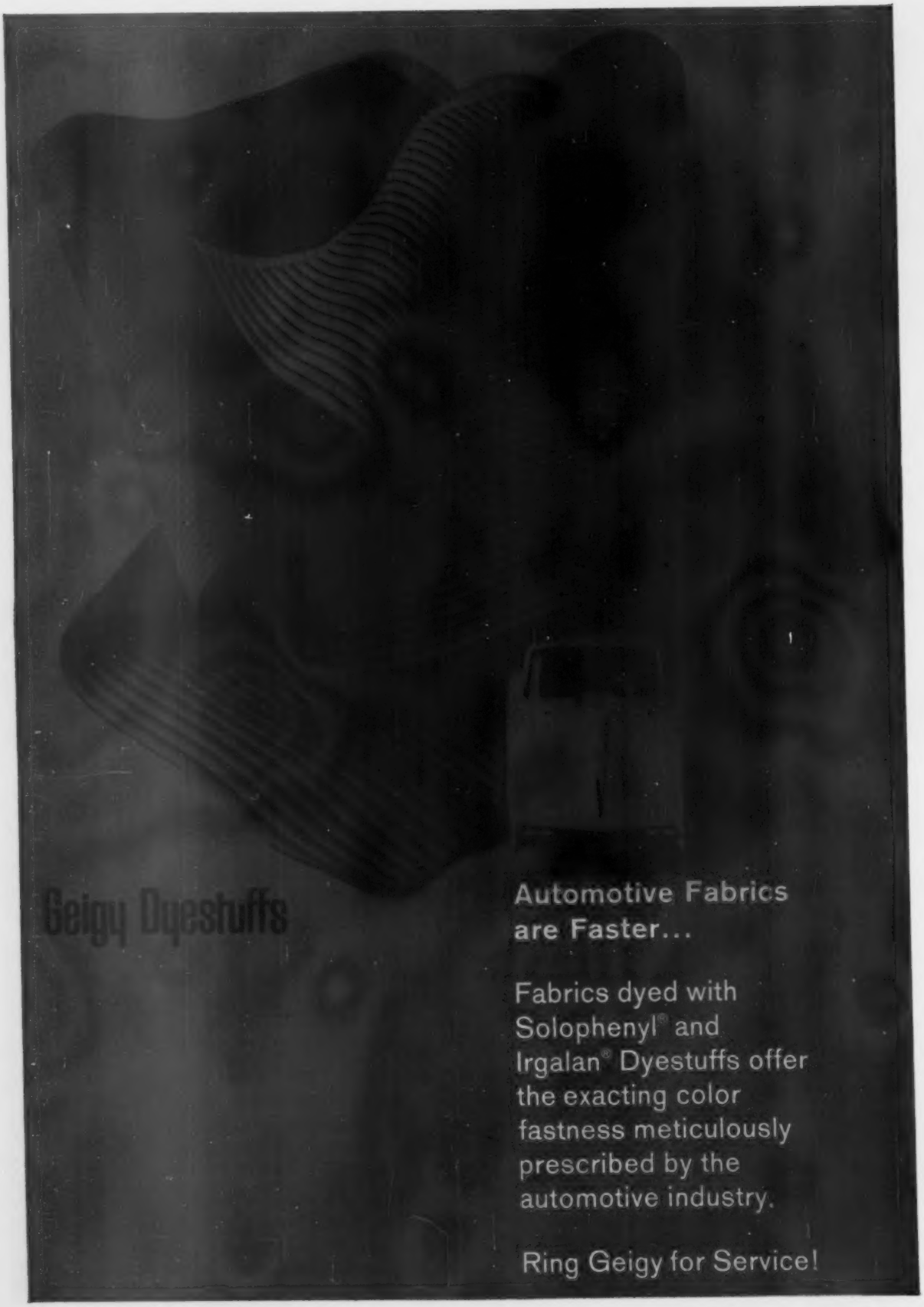
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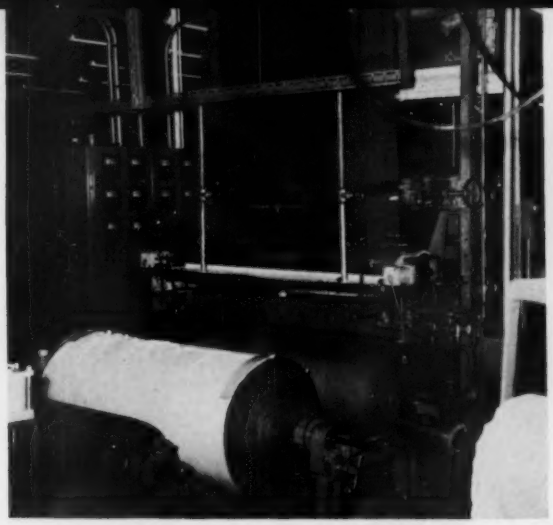
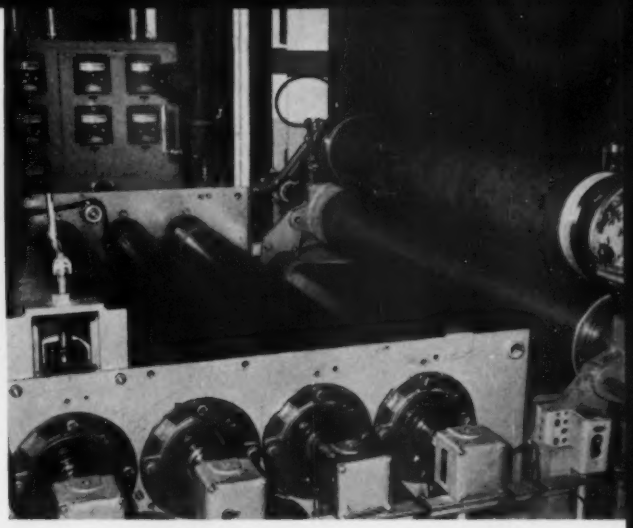


LAMINATOR is fed vinyl film (left), which goes up and over the machine through an accumulator. A spare roll of knitted fabric is standing by (center), while another roll is fed into the nip rolls where it meets vinyl on its way to the . . .



. . . HEATING ROLLS and embossing train. In the background you can see the battery of indicator-controllers that monitor heat to the 10 rolls in the heating system. The company heats the vinyl film to 328 F.

CHEMICAL TREATMENT & FINISHING

Laminating Vinyl to Fabric

This new plant is geared to supply the neighboring furniture industry with a vinyl sheet backed by knitted cotton fabric. Today it's turning out 100,000 to 150,000 yards a week—and output is increasing as fast as workers can learn their jobs.

SPANKING new, modern, and efficient. Those are the words for Masland Duraleather Co.'s vinyl-to-fabric laminating plant at Mocksville, N. C. It fills a need in an area where furniture making is a key industry. Its tie with the textile industry: The very considerable use of knitted and nonwoven fabrics used to back the vinyl sheet.

Masland calls its Plant No. 3 a finishing plant. Major operations: printing, laminating, and embossing. Major product: vinyl sheet backed by knitted cotton fabric. Between 70 and 75% of the goods moving out of the plant are in this category. That adds up to over 100,000 yards a week of plain-knit cotton fabric weighing 2 or 3 pounds per linear yard, 54 inches wide. The circular-knit fabric is supplied already split, with gummed edges to prevent curling of the fabric.

Masland has a new line, too—vinyl backed by Pellon. In this construction, Masland gets a leather-like product with the thickness and body of a hide.

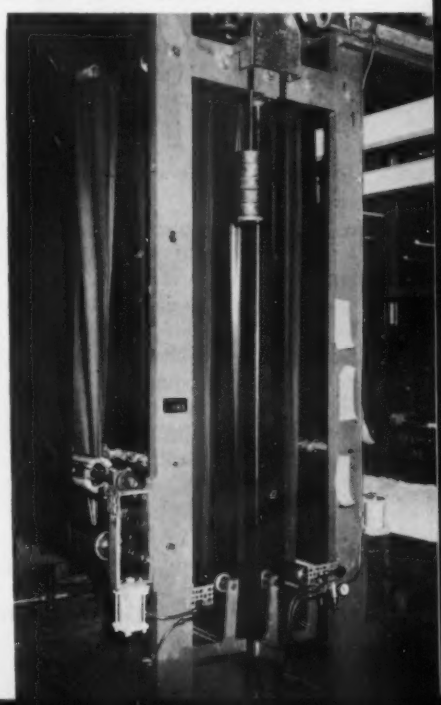
Plant No. 3 doesn't make vinyl sheet. That's sent down from the parent plant in Philadelphia. And the basic colors used in printing are shipped to the plant in semiprepared condition.

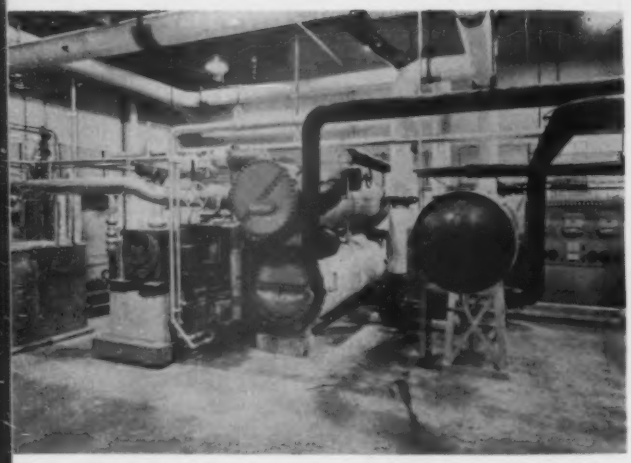
HOW THE JOB IS DONE

The first finishing operation at Plant No. 3 is printing, if the order calls for it. At this stage the vinyl sheet is smooth and ideally shaped to take color in sharply defined patterns.

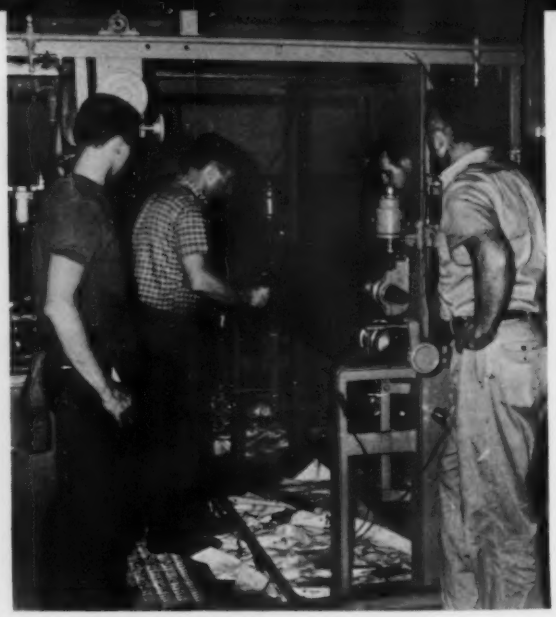
Masland has two four-color machines built to its own design, plus one Embler four-color machine. The company prints vinyl from rolls

ACCUMULATOR provides time to attach new roll of vinyl film to end of old.





HEAT PUMP system provides 350 tons of refrigeration or sufficient heat for the whole plant according to need.



PRINTING machine strikes off new pattern. Four units like this one are coordinated to print four colors.

LAMINATING VINYL TO FABRIC . . . *Begins on page 89*

engraved by the rotogravure process. Very shallow engraving is adequate for the surface-printing characteristic of vinyl patterns.

Colors are based on oil-soluble dyes, lakes, and pigments. Masland cuts back concentrates (shipped from Philadelphia) with solvents such as methylethyl ketone and other extenders.

The vinyl sheet passes through a nip comprised of the engraved pattern roll and rubber roll. The engraved roll runs in a trough supplied with color. A doctor blade removes excess color from the surface of the roll. Clear lacquer is applied as a top protective coating in a conventional pad at the end of the machine. Then the printed vinyl is led into an overhead drying oven where volatile matter is removed, and the job is done.

Masland designed machines that laminate vinyl to its backing and emboss the surface in one run.

Prime requisite in this process: temperature control. Vinyl film laminates to fabric when it's heated near its melting point of 350 F. The cloth backing gets a thin adhesive coating when it meets the vinyl film at the nip between an engraved embossing roll and a rubber roll. A third roll is mounted over the embossing roll.

The embossing roll and the top roll are supplied with chilled water. Sprayed water cools the lower rubber roll, and a squeegee removes any excess water. The vinyl sheet passes over 6 to 10 electrically heated rolls, varying according to the style being run. On one laminator the vinyl and fabric are embossed directly after the heated vinyl leaves the hot rolls.

The feed end of the laminator has an accumulator (photo, p. 89). This unit stores extra film so that a new roll can be hooked onto the end of an old roll without stopping the laminator.

A machine that embosses unsupported vinyl preheats the sheet on six heated rolls, then feeds it to a blanket under infrared units to complete the heating process. The blanket supplies temporary support to the film. You have to watch tension because vinyl is easily stretched near its melting point.

All the chilled water used to cool nips in the embossing ranges feeds back to a reservoir. The heat pump picks up heat from this water to aid the heating unit of the absorption-system refrigeration unit. The latter supplies the chilled water and cools the air.

Final steps in the production of finished vinyl fabrics include close inspection, wrapping, and warehousing or shipping.

MANAGEMENT HAPPY

Management is well satisfied with the operation. Local labor has proved to be excellent. Charles McCoy, plant manager, says: "We only brought three people down from Philadelphia. Everyone else has been trained on the job on machines they never heard of before. We're hiring two or three new employees a week, and expect to be up to our full complement of 200 in a year."

The entire plant is on one floor, a setup that simplifies handling of both product and supplies. Cost of the 142,000-sq.-ft. building plus equipment: $1¾-million.

Outstanding feature: heating and cooling system. A Carrier absorption-type refrigeration system served by a General Electric heat pump provides climate control. This is the largest heat-pump installation in the world. The main unit is rated at 350 tons of refrigeration; a smaller stand-by rates 85 tons.

Power costs are low enough for Masland to estimate that its present air-conditioning system costs $4,500 a year less than boiler heat and separate air-conditioning units would cost. Added advantages: practically no operating labor cost and flameless heating—needed for explosion-proof equipment.

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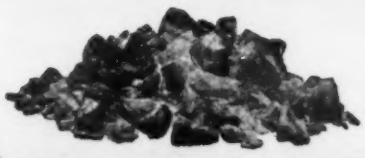

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Tips on Emulsion Printing

Here's a roundup of reasons why emulsions are the byword in printing today. You'll find step-by-step procedures and pointers on which method is best for you.

THE MAGIC WORD in printing today is emulsions. Why? You can get color effects once unattainable with old paste methods. And you may be able to cut printing costs and simplify procedures.

There are two principal types of emulsions. The first is the oil-phase, or water-in-oil emulsion. This type accounts for the majority of resin-bonded pigment prints. The other is the oil-in-water emulsion, which has some advantages over the first one mentioned.

Here's an idea of the structure of a water-in-oil emulsion: The continuous phase is the oil or solvent compound. Water is dispersed in extremely small droplets, with the principle purpose of increasing the viscosity of the emulsions. The external, continuous phase should contain the important ingredients to insure smooth coloring results.

The structure of an oil-in-water emulsion is just the reverse of the water-in-oil type.

WATER-IN-OIL

You usually prepare a water-in-oil printing emulsion in three steps:

1. Prepare colored concentrate.
2. Prepare reducing clear.
3. Prepare emulsion from colored concentrate and reducing clear.

To prepare the colored concentrate, first dissolve the oil- or solvent-soluble ingredients in portions of the solvent. Put insoluble pigments, either in dry form or wet press cake, in a doughmixer and then add other ingredients in small portions.

By CHESTER A. AMICK
Textile Consultant
Bound Brook, N. J.

The aim: Keep the contents of the mixer in a stiff, doughy mass. This sort of mixture gets considerable shearing action in the mixing process, which breaks up agglomerates of dry pigment, reduces specking, and increases color value.

If wet press cake is the source of color, the doughmixer flushes water out and at the same time wets the pigment with the oil content of the mix. Part of the moisture in the press cake becomes emulsified in the oil phase in this process.

You can make the reducing clear by dispersing an alkyd resin in a mineral-spirit solvent. Then add water to this dispersion with the aid of a high-speed mixer. Stir in as much as 70% water, which increases the viscosity of the clear.

Final step: Add the color concentrate in an amount needed to get the required shade.

The variety of resins and solvents available today often produces a three-phase emulsion in some mixtures. This is a desirable situation because under printing pressure the emulsion breaks to give a discontinuous film. Softer fabric is the result.

Sometimes you can add special clears to the basic emulsion. One example: rubber latex, which reduces crocking.

You should carefully control the way you add ingredients—and how much you add. For example, if you add 2 to 4% of an emulsifier such as Aerosol 18, you get an excellent water-in-oil emulsion. But if you lower the amount sufficiently, the emulsion may invert to an oil-in-water type.

Viscosity is largely controlled by the water-oil ratio, but you can add thickeners to maintain a desired viscosity.

You can use practically all pigments in this system, except mineral oxides like red iron oxide.

Here's How the Two Types of Emulsions Compare

Advantages

Oil-in-Water	Water-in-Oil
1. Produces good crock fastness.	1. Makes sharper prints.
2. Can be used in heavy shades.	2. Has little migration.
3. Provides only means of using certain pigments.	3. Can be used with most pigments.
4. Can be used for extreme lightfastness or special purposes.	4. Gives good washfastness.
	5. Is cheap.

Disadvantages

1. Is expensive.	1. Is hard to clean*.

* The development of high-pressure (jet) air and water sprays, squeegeeing, and absorbent blankets for drying have simplified the cleaning problem.

Melamine-type resins may be supplanted by alkyd resins. Neither needs a special curing step to fix the color. You can probably get maximum fastness by dissolving a small amount of ammonium sulfate in the water phase, plus heating the print at 300 F. for a short time.

Some plants prefer monomeric resins, which require a thorough curing if the pigment is to be well fixed in the goods.

OIL-IN-WATER

You can produce this type of emulsion by making slight changes in the amount of emulsifying agent as noted. The ingredients otherwise are about the same. For heavy shades or for good fastness to crocking, oil-in-water emulsions are often preferred.

The water-to-oil ratio in the water-phase emulsion usually does not produce enough viscosity for good printing. But you can add thickeners such as methyl cellulose to boost viscosity.

Both systems have their good points. You can see how they compare in the chart (p. 93).

DIFFERENT SYSTEMS

The first emulsion printing systems were devised to fasten pigments to the fabric. Pigments don't dye any fiber, so you have to use thermosetting resins to lock fiber and pigment together. Most of these are water-in-oil types.

The latest emulsion-printing systems are engineered to carry dyes rather than pigments and hence don't need any resinous binders in their make-up. The usual chemical or physical reactions between dyes and fibers take over here. Most of these are oil-in-water types.

Using Dyes—Probably the first use of oil-in-water emulsions for printing vat dyes was disclosed in U. S. Patent 2,597,281, issued to Borstelman and Fordemwalt and assigned to American Cyanamid Co.

In this formulation an oil-in-water emulsion thickener replaced the older type of thickener, the conventional starchy paste.

Here's a typical screen-printing formula of this kind:

Chemical Compound	Parts by Weight
Cold water	386
Sodium lignin sulfonate	20
Carboxymethylcellulose (HV-120)	3
Guar gum	1
Soda ash	45
Potassium carbonate	45
Sodium sulfoxylate formaldehyde	100
Mineral spirits	400
Total	1,000

Add the sodium lignin sulfonate, carboxymethylcellulose, and Guar gum slowly in that order to the water, while stirring with an Eppenbach mixer. When the mixture is smooth and homogeneous, add the alkalis and finally the printing hydro (sodium sulfoxylate formaldehyde).

Continue stirring until the solution is complete. You may dissolve the alkali and hydro in a portion of the total water before adding them to the mix. Be sure not to whip excess air into the emulsion after adding the hydro.

Now add the mineral spirit at about the same rate at which it is emulsified. Best way: Introduce the mineral spirit below the surface of the mix through a pipe that delivers near the mixer head.

Be sure the thickeners are well dissolved before you add the alkalis and hydro. The latter can be added in dry form.

The emulsion is compatible with glycerine, ethylene or diethylene glycol (up to 8%) and urea.

Here's how to make an emulsion for machine printing of vat colors:

Chemical Compound	Parts by Weight
Water	353
Octyl alcohol	1
Sodium lignin sulfonate	20
Carboxymethylcellulose (HV-120)	6
Potassium carbonate	100
Printing hydro	150
Mineral spirits	310
Can sugar	60
Total	1,000

Here's how to make an emulsion for reducing vat-color density:

Chemical Compound	Parts by Weight
Water	314
Octyl alcohol	1
Sodium lignin sulfonate	20
Carboxymethylcellulose (HV-120)	6
Sodium carbonate	25
Potassium carbonate	25
Sodium sulfoxylate formaldehyde	50
Mineral spirits	449
Cane sugar	60
Total	950

Add ingredients in the order indicated and stir thoroughly. Then add well-dispersed vat pigments as you do with starch-based pastes.

The oil-in-water vat-printing emulsions have several advantages over the old-style starch pastes. Shades are brighter and color value is greater. Prints are sharper and oxidize more readily. The fabric is softer because very little water-soluble gum goes on the goods.

Color in oil-in-water emulsions penetrates rapidly into the goods. This characteristic is helpful in screen printing where wet-on-wet combinations are made possible by emulsions. Also, the emulsions dry rapidly on the table.

Backgrays clean up more easily when emulsions rather than starchy pastes are used.

You can formulate an all-purpose emulsion that works well with many classes of dyes this way:

Chemical Compound	Parts by Weight
Aerosol wetting agent	18
4% solution of Keltex or 6% solution of carboxymethylcellulose (HV-120)	200
Water	189
Octyl alcohol	1
Total	408

Add ingredients in that order and stir thoroughly. The creamy white and stable emulsion will carry direct, azoic, vat, basic, acid, premetalized, or sulfur dyes.

If the printing combination includes resin-bonded pigments, you may have to add an oleate soap to avoid breakdown.

A colorful conclusion for woolens . . . Amacid* and Chromaven* Dyes

Capture the spirit of the season with all your woolen goods . . . use AMACID and CHROMAVEN DYES. Available in a complete range of lively hues, Koppers select dyes are fast to sunlight, washing, perspiration and dry cleaning. You'll find, too, that these dyes are easily applied, and that they meet specific color demands for every type of wool dyeing—yarn or piece goods. So specify AMACID and CHROMAVEN DYES and get the color treatment you want . . . prize woolens dyed to stay vibrant.

For more information or technical assistance, get in touch with your nearest Koppers representative. Our laboratory facilities are always at your disposal.

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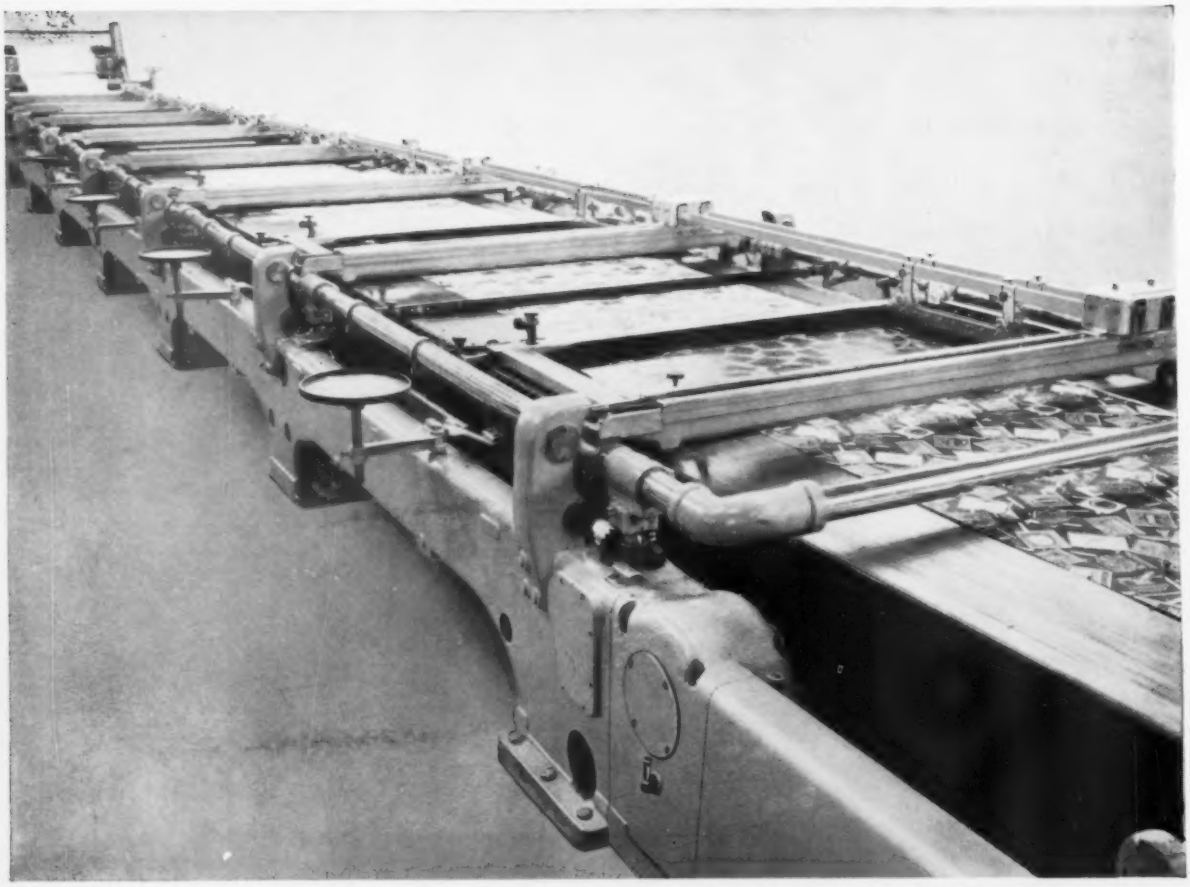

Screen print up to 12 yds. of fabric per minute with an ICHINOSE-TYPE MULTI-COLOR AUTOMATIC SCREEN PRINTING MACHINE

The Ichinose screen printing machine, with more than 140 patented improvements, screen prints all kinds of fabric perfectly in maximum 21 colors at nearly double the speed of other machines on the market. Finished prints are of highest quality: clean, sharp, accurate and far superior to hand or roller prints.

Ichinose means less power and steam, cuts labor costs to only two operators. Change of design and colors takes less than 30 minutes.

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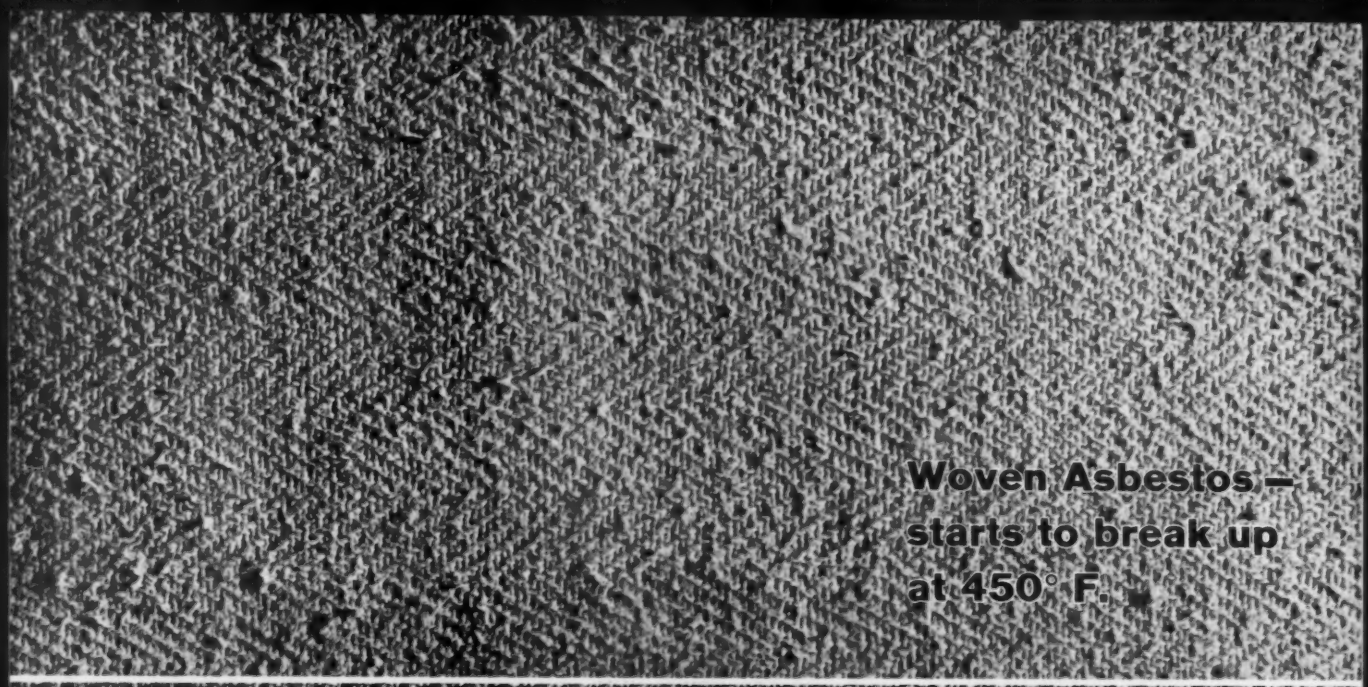

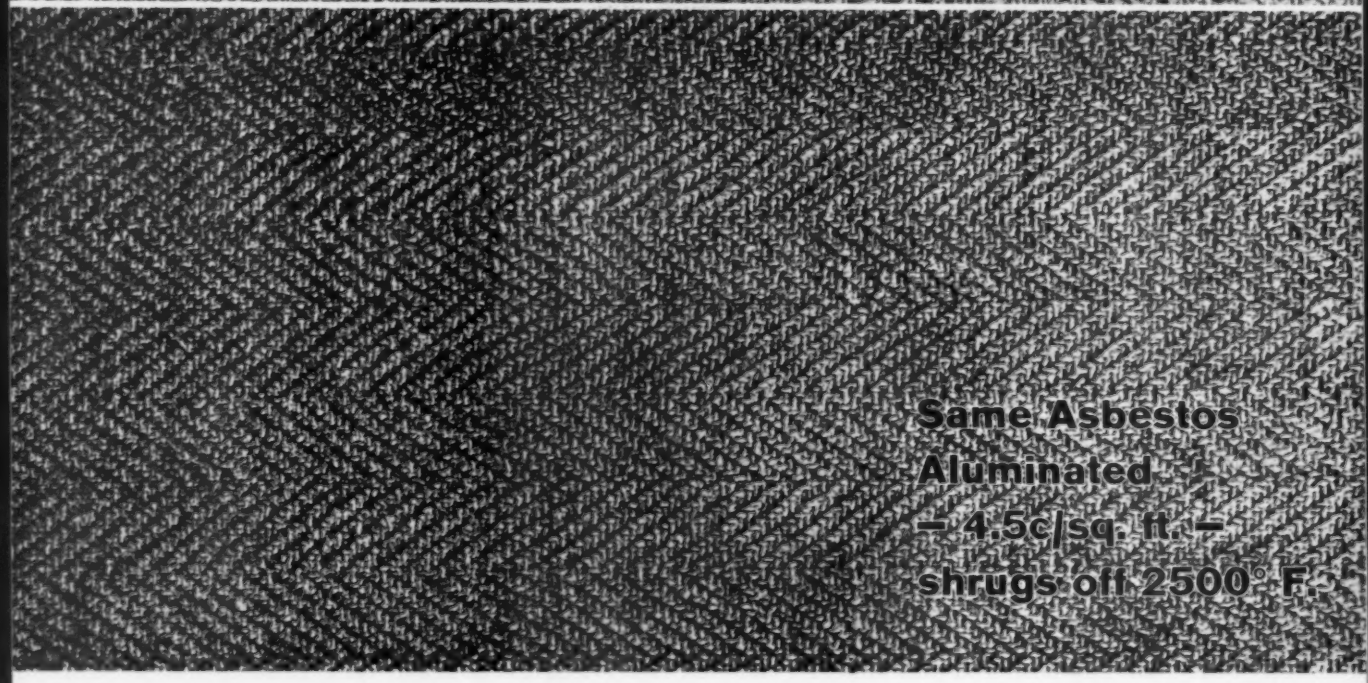

There's a big new field for all kinds of fabrics wherever temperature's a problem. Low cost Alumination by Thermo-Chem lets you go into business where your fabrics were never thought of before.

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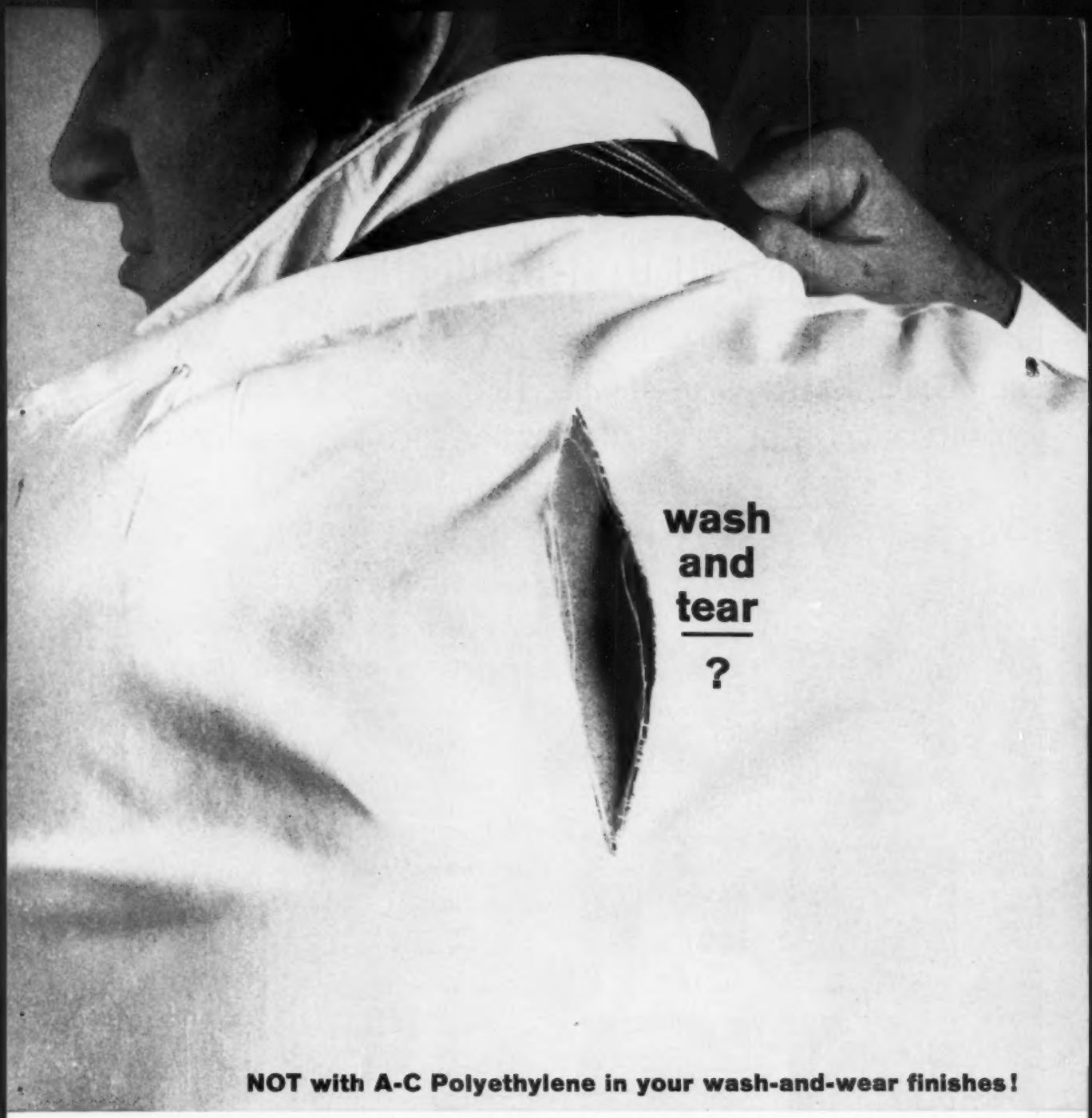

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Concerned over loss of tear strength caused by some wash-wear resins? A-C® Polyethylene can help you!

Combined with conventional resins, this new emulsifiable polyethylene overcomes such loss—actually raises tear strength to *above* normal. Imparts extra crease resistance, too. And A-C Polyethylene is permanent through multiple cleaning cycles.

Finishes formulated with A-C Polyethylene stay *white*, do not retain chlorine, resist scorching. They afford excellent abrasion resistance and antifrictional properties. Won't affect lightfastness or dye shades.

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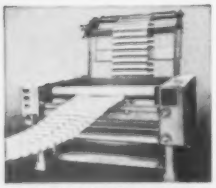
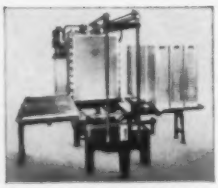
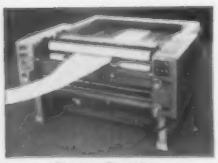


Turbo Padder-Extractor for Tubular Knits



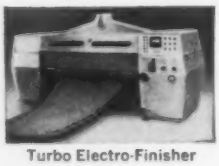
Turbo FS-300 Fiber Setter



Turbo Finisher for Tubular Knits

Turbo Package Dyeing and Drying Machines

Turbo Tow Processing Machine



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- PRE-BOARDING MACHINES
- BOARDING MACHINES

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- FINISHER
- PADDER EXTRACTOR

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- SHEARER

For Synthetic Fiber Processing
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- FIBER SETTERS
- CRIMPING MACHINES
- TOW PROCESSING MACHINES

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- EXTRACTOR-DRYER
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- SKEIN DYEING MACHINES
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For Carpets
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TURBO

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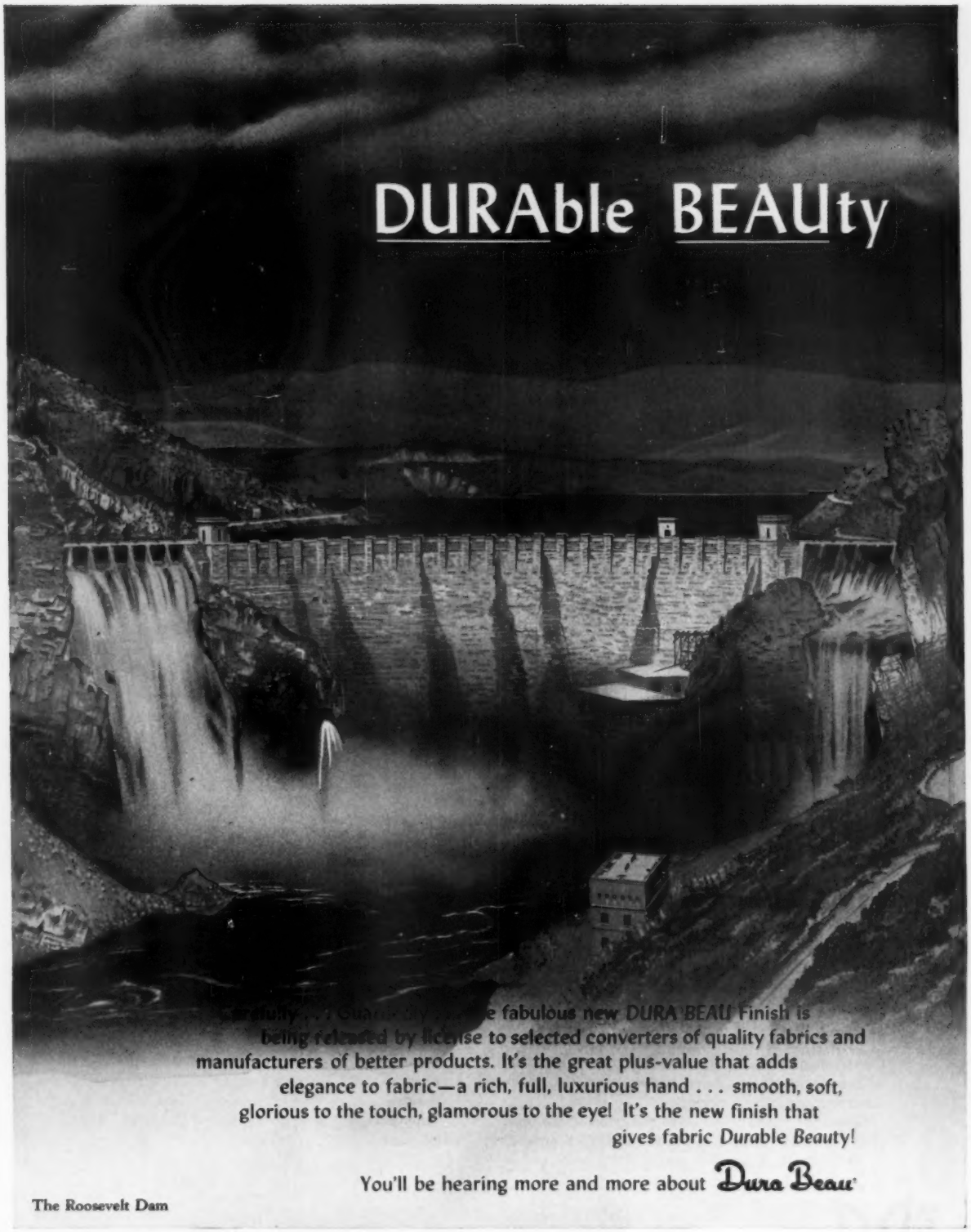
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the textile salt experience of Jim Selbee!

Standard-Coosa-Thatcher Company (spinners, mercerizers, dyers, bleachers) meets the quality demands of their customers. To help them, this company demands the best textile salt for use in their various processes.

Here, H. E. DeLay (center), Superintendent of the thread processing plant, Rossville, Georgia, consults with Jim Selbee (right), Diamond Crystal's Assistant Manager of Industrial Sales. This is another example of how on-the-spot experience and the understanding of problems by home office officials, helps Diamond Crystal salesmen serve your needs more efficiently.

Diamond Crystal C.M.F. type salt offers textile processors a unique margin of difference. Unlike ordinary salt, harmful calcium and magnesium have been removed resulting in a product which consistently analyzes 99.95% sodium chloride. This margin of difference will carry through to your finished product . . . true colors and uniform dyeing, fewer rejects, higher profits.

If you use rock salt, you will notice the difference in Louisiana Rock Salt from Jefferson Island, because it is 99% pure at its source. A long time favorite in textile processing, this quality salt will serve you well.

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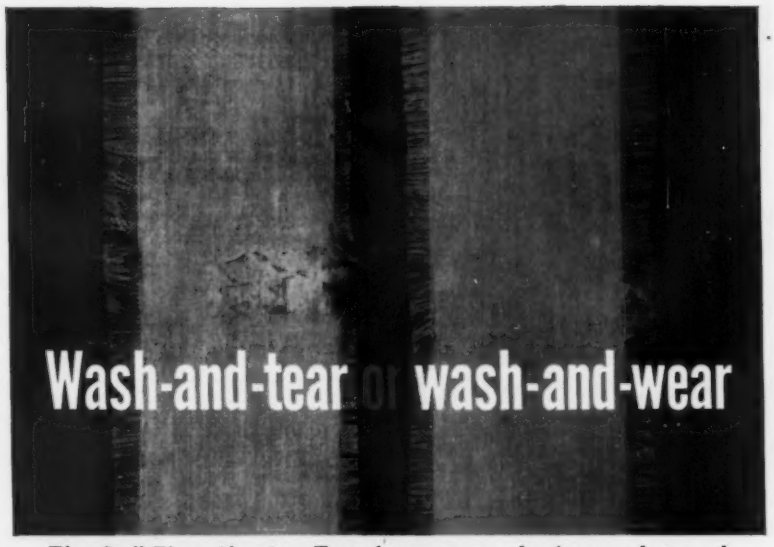
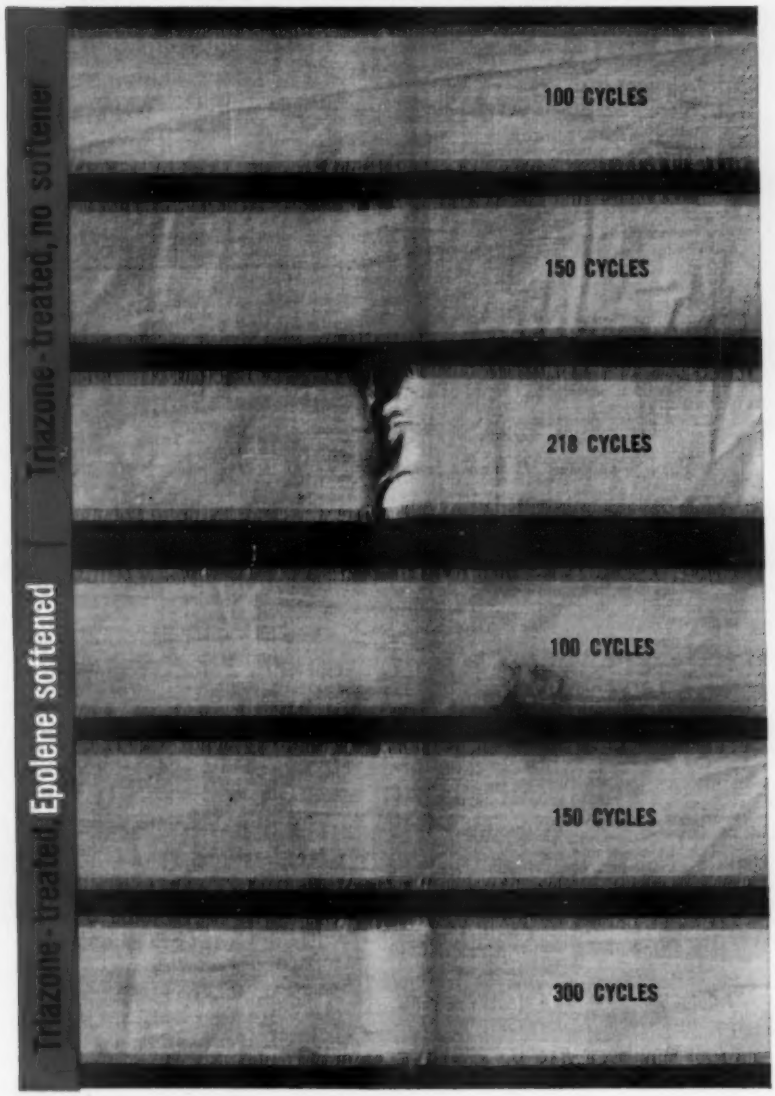


The Stoll-Flex Abrasion Test demonstrates the increased strength given to a resin-treated cotton fabric by an Epolene softener.

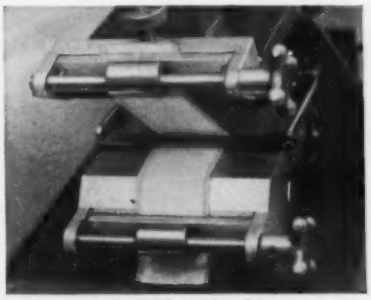


IT is axiomatic in the textile industry that the finishing resin alone does not a wash-and-wear fabric make. In fact, the variables are many, and often complex.

Of primary importance is selection of the softener. If properly chosen to match the specific type of finishing resin to be used, the combination can provide the optimum in tear strength, abrasion resistance, crease recovery, hand, and sewability for the treated fabrics.

Eastman offers three emulsifiable types of polyethylene resins for use as softeners... Epolene E-10, Epolene E-11, and Epolene E-12. These low-molecular-weight polyethylenes are suitable for either nonionic, anionic, or cationic systems, easily forming emulsions that are stable and low in color.

Epolene polyethylene emulsions have been evaluated under operating conditions with all of the principal wash-and-



Stoll-Flex Abrader

wear resins in use today. These include triazone, triazene, melamine formaldehyde, methylated melamine formaldehyde, dimethylol ethylene urea, and methylated urea-formaldehyde type finishing resins. The results of these test procedures are available to aid you in selecting the right softener for your finishing requirements.

For further information about Epolene textile emulsions, their preparation and use, contact your Eastman representative, or write Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Company, Kingsport, Tenn.

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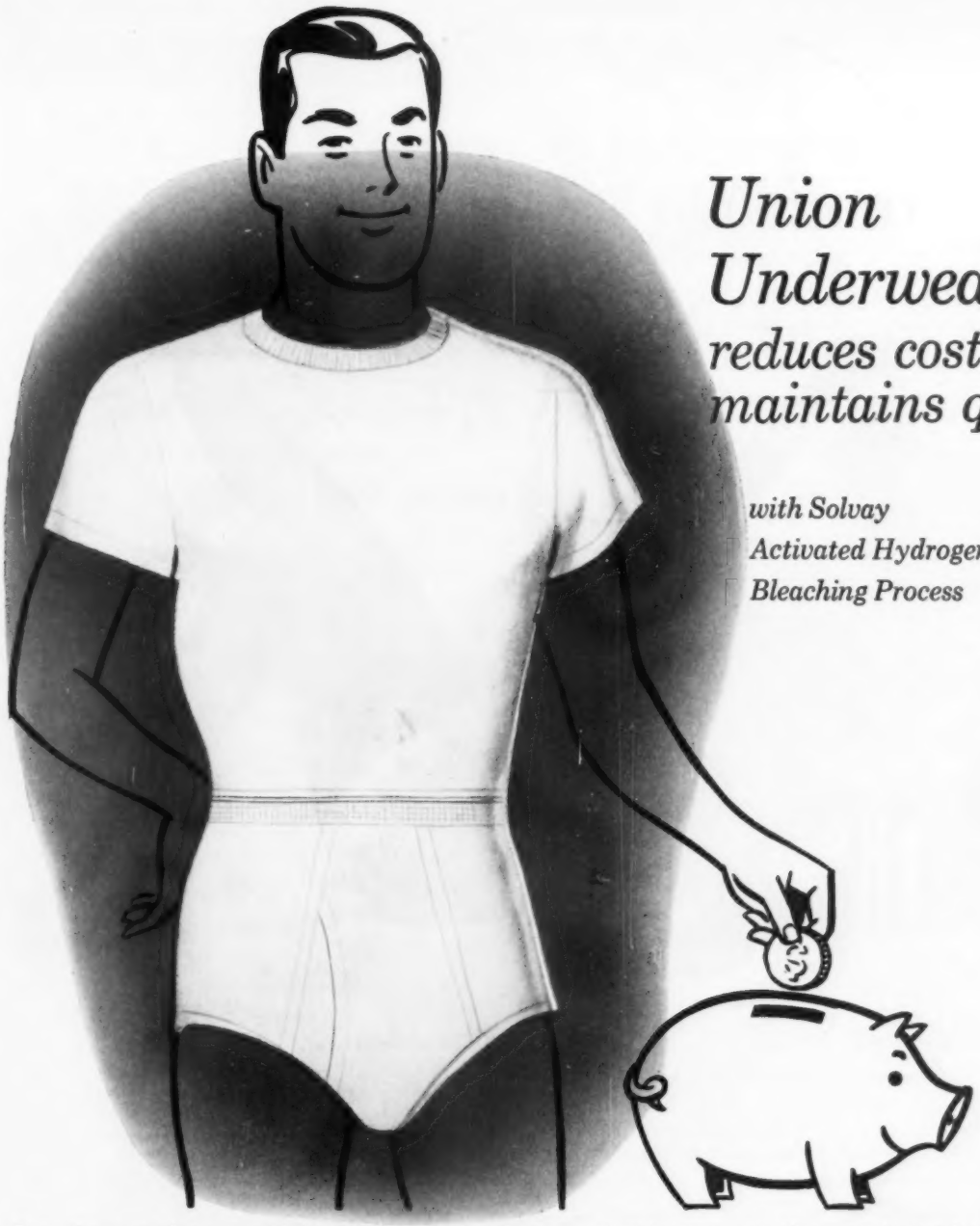

Union Underwear reduces costs... maintains quality

with Solvay Activated Hydrogen Peroxide Bleaching Process

Over the past nine years Union Underwear Co., Inc.—licensed manufacturers of "Fruit-of-the-Loom" brand underwear—has maintained their quality standard without increasing prices. An important factor in this improved manufacturing efficiency was their adoption of the *Solvay Activated Hydrogen Peroxide Bleaching Process.*

The Solvay Activated Hydrogen Peroxide Bleaching Process is a new method for bleaching cotton developed by Allied Chemical Corporation and available under a royalty-free license. This new process can give you whites equal to your present process with an important decrease in costs . . . consumption of hydrogen peroxide and additives can be reduced 25 to 50% depending on purity of cotton before bleaching. Or, you can achieve whiter whites at no increase in cost.

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Also designed for both tricot *and* woven synthetics, gives more fullness and body! In addition, it's ideal for use on elastic fabrics that contain rubber or similar materials!

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490-Q

Save up to one-third on BLEACHING *cost with new Columbia Southern* H_2O_2 *process for continuous cotton goods*

The more impurities you remove from cotton goods in the scouring operation, the less hydrogen peroxide you need for subsequent bleaching. Starting with this accepted fact, scientists at PPG-Chemical Division laboratories have developed a low-cost process for improving the scouring efficiency. The result is a saving of ONE-THIRD or more on hydrogen peroxide, with equal or better whiteness, tensile strength and hand.

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- new uniformity
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And, of course, Mathieson service backs every order with technical assistance—on the spot or laboratory-checked. For full details, write OLIN MATHIESON, Baltimore 3, Maryland.

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CHEMICALS DIVISION Olin

CIRCLE 115 ON READER SERVICE CARD 115

TEXTILE WORLD. . . COST CUTTERS

Mill Cuts Binder Replacement 50%

Loom binder covers and front box-plate covers now last at least 50% longer at Woodside Mills, Fountain Inn, S. C. Reason: The mill now uses material composed of cellulose fibers, ground cork, and synthetic oil-resistant rubber densified under heat and pressure (Armstrong Cork Co., CN889).

With conventional material, Woodside replaced an average of 45 binders and 24 box plates each week. Now replacements average only 10 binders and 12 plates on 557 looms operating 144 hours a week in 88% r.h. Looms run at 175 ppm. with laminated-plastic shuttles.

Humidity used to affect the left-hand binder and box plate requiring periodic adjustments. The new material needs no adjustments.

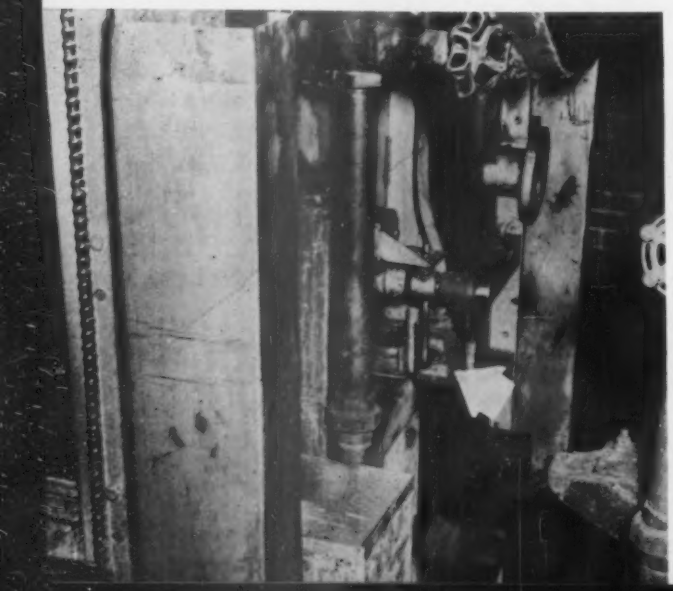
New Waste House Eliminates All Labor

A new waste house at Carter Bros., Inc., Chattanooga, Tenn., has eliminated all labor for Carter employees. Once a week a local waste dealer picks up the waste consisting of extracted lint from dryers.

The new house is solid concrete and wire mesh. Walls are concrete block, and the floor and roof are concrete slab. Windows and doors of wire mesh ventilate the building.

Ducts 24 inches in diameter have a damper to cut off possible fires. In addition, ducts and the waste house are equipped with a sprinkler system.

Carter's old waste house used to require weekly cleaning. And besides, there was always a chance of flash-back fires that might reach the mill since the old house adjoined the mill building.



Mercury Switch Cuts Seconds to Zero

Thrift Dye Works, Paw Creek, N. C., gets a big dividend by adding an inexpensive mercury switch to its dye becks.

Thrift dyes a great deal of Acrilan knitted fabrics, and these goods have a tendency to float and sometimes tangle. If a tangle comes up to the pin rail, the rail rises and actuates a mercury switch (arrow) mounted in a conventional stop-button receptacle. The dye beck stops as the circuit is broken and the operator can then untangle the faulty piece of fabric before it has a chance to be damaged.

According to President Irving Bendell, the switch has cut seconds to practically nothing.

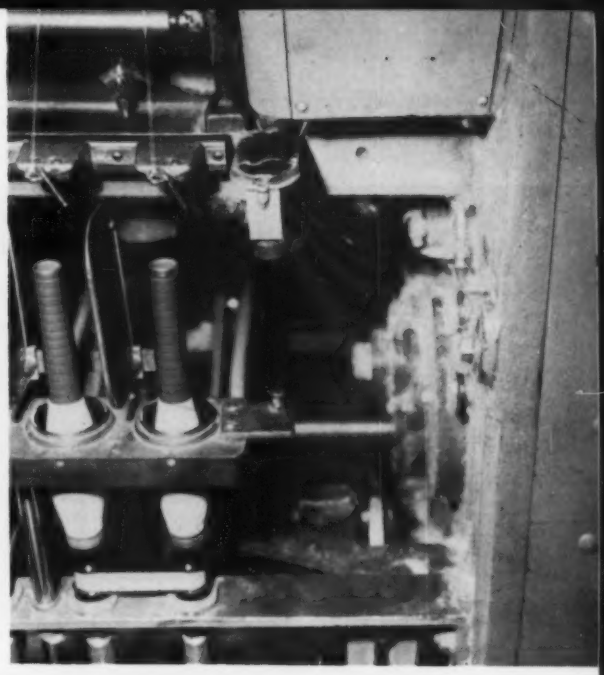
Previous to the installation of the safety switch, seconds due to chafe marks averaged 5 to 10%.

No More Rewinding Costs

Special knock-off motions on rebuilt spinning frames at Grantville (Ga.) Division of Flagg-Utica Corp. save money by stopping the frame when the bobbin reaches a predetermined size. This action eliminates undersize and oversize bobbins—they all run out at the same time from one doff to the next.

The knock-off motion greatly reduces tangled yarn and eliminates short doffs. The latter feature saves money by cutting out rewinding.

This knock-off device, supplied by Roberts Co., consists of a Micro switch on the side of the frame with the contact near the top of the spindle. An adjustable steel button bolted to the end of the ring rail rides up until it makes contact with the switch. It instantly flips and stops the frame.

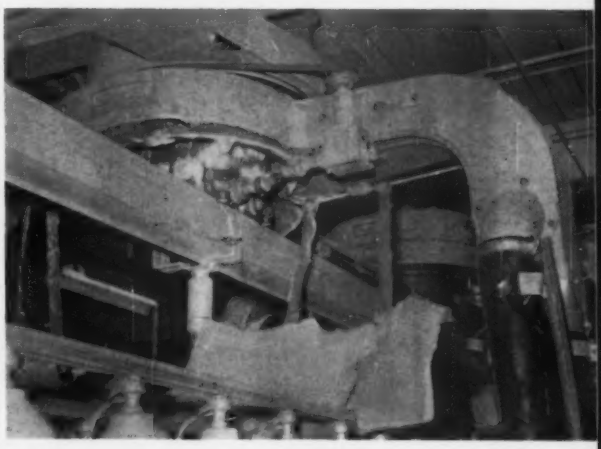


"Drag Rag" Saves $1,200

A homemade trailing device attached to traveling spinning-frame cleaners at Swift Mfg. Co., Columbus, Ga., greatly increases efficiency in removing humidity-attracted lint from the top of creels.

A piece of heavy duck fabric cut to the width of the creel eliminates the need for manual cleaning. This device saves the company about $1,200 in labor cost per year. Before the use of the "drag rag," the top of creels had to be cleaned by hand once a day.

Cleaner speed is 122 fpm., and yarns spun on these frames are from SGO and LM cotton. Swift spokesmen say that this cleaning method considerably improves yarn quality and that the trailer does a much better cleaning job than can be done by hand. Its cost is negligible.



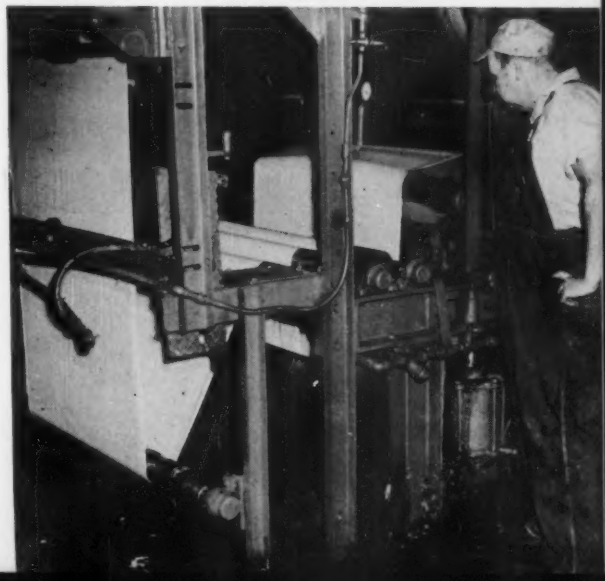
Dye-Pad Downtime Cut 50%

Just the right formulation for the cover of the rubber dye-pad rolls in the three-roll pad shown has cut downtime 50% for Jefferson Mills, Jefferson, Ga.

Problems with the soft component of a pad-roll combination in dye pads: Excessive wear at selvage-bearing areas and trouble in cleaning up from dark shades to lighter ones.

In this range, which is used for dyeing corduroys and glove flannels, Jefferson installed Micromate rolls (Stowe-Woodward, Inc.). Result of installation: 15 to 18 months between regrinds and 2½- to 3-million yards production in that period without experiencing any roll trouble.

Previously, dye-pad rolls had to be resurfaced every 6 to 9 months.

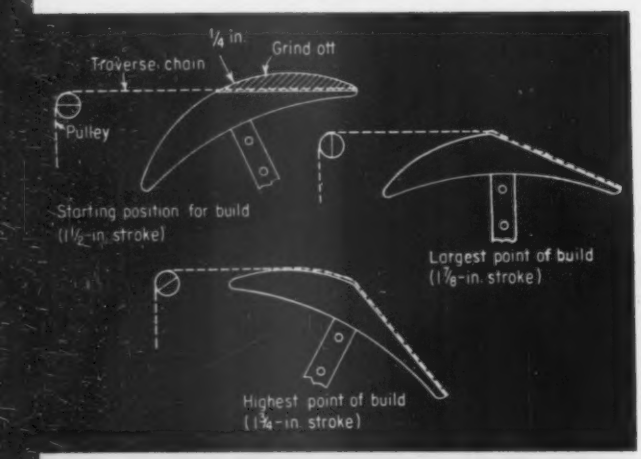


Recorder Ups Output 20%

A simple recording instrument that keeps track of the time a printing machine has stopped running is paying off nicely for Melville Textile Print Works, Statesville, N. C.

The Recorder-Totalizer (Standard Instrument Corp.) provides management with a record of downtime in minutes. It also records the total operating time of the machine so the productive time on each shift can be figured easily.

President Donald Melville (photo) figures the benefits of the recorder two ways. "First," he says, "we can pinpoint causes of long shutdowns on the printing machine by calling in the operator for an explanation. Then, the fact that we're keeping track of downtime has actually boosted production 20%."



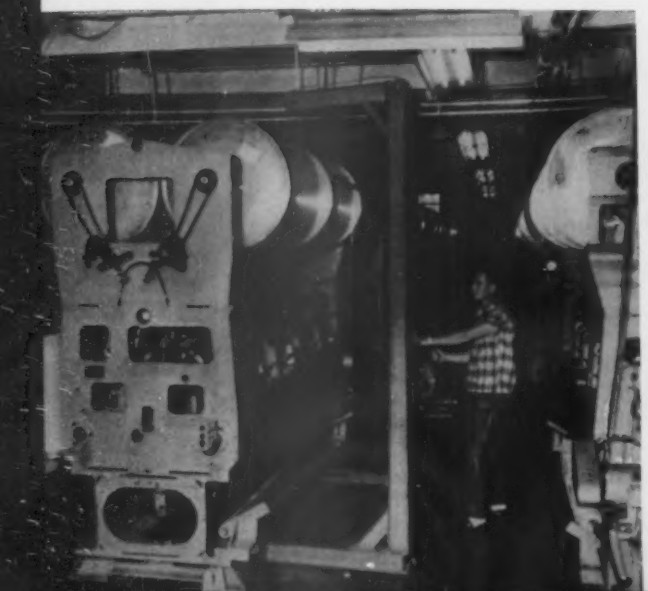
Swivel Arm Increases Package Size

If you're having trouble winding filling, follow this method used at Clinton Cotton Mills, Clinton, S. C.

This mill used to build a tapered package that wasn't entirely satisfactory. It wasn't uniform and it didn't hold maximum yardage. Clinton overcame the problem by grinding off the swivel arm of its builder motion (diagram). At the same time, it flattened the production-chain pulley to permit a shorter stroke at the bottom taper of the package.

This arrangement gives a 1½-in. stroke during the building of the bottom taper, a 1⅞-in. stroke when the traverse reaches the biggest part of the package, and a 1¾-in stroke for the rest of the build.

Advantages: 300 more yards of yarn on the bobbin, fewer bobbins to be doffed, and less downtime.



Rewarping Time Cut in Half

Flagg-Utica Corp., Grantville, Ga., has an electric hoist that cuts in half time lost for rewarping.

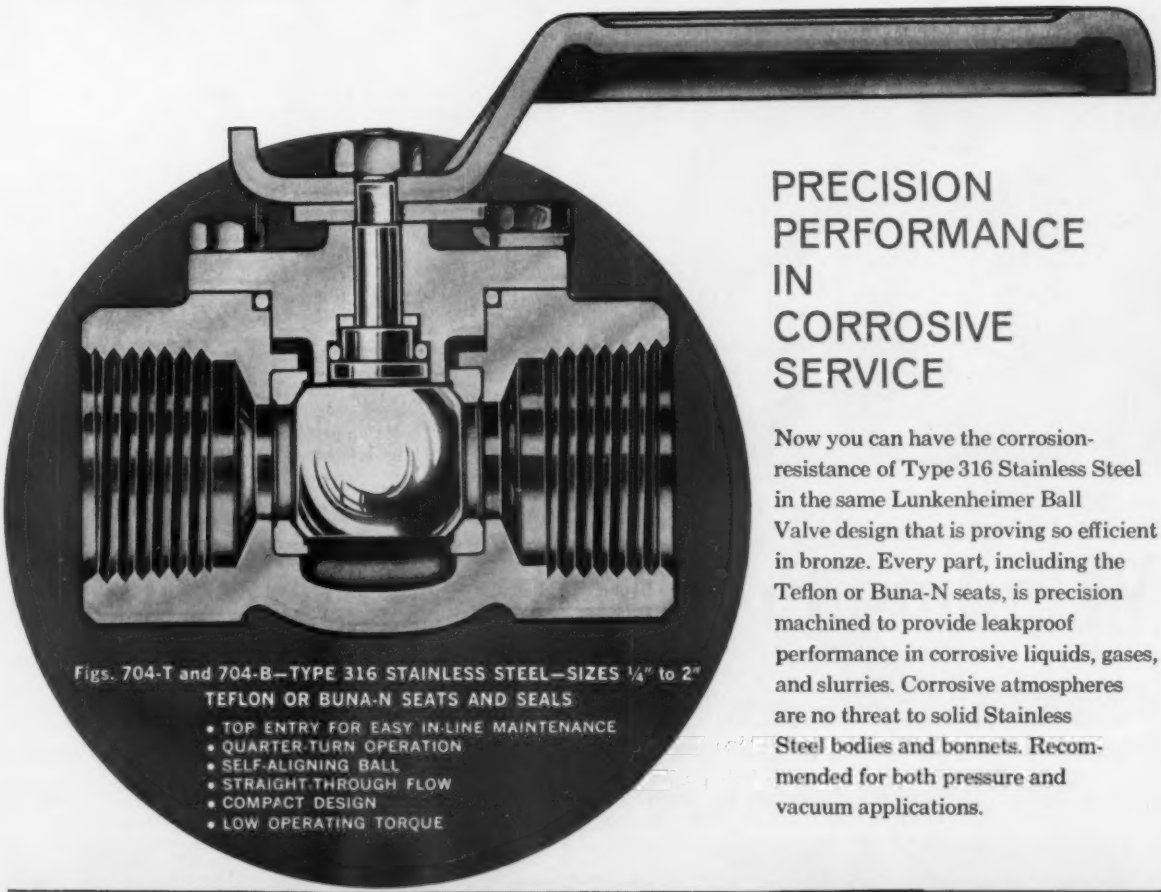
The company recently added raschel knitting machines in an old mill building. Because of the low ceiling, there wasn't room to add a Monorail system for lifting the warp beams in place.

Since full beams weigh 500 pounds, the job couldn't be done manually. But management men came up with an idea that lets only one man lift out the empty beams and put in full ones.

The company welded together a channel-iron framework (photo). It made a sling from a steel cable to support warp beams from their ends. And it mounted an electric motor on the framework at hand level.

Now to lift out or lift in a beam, a man simply presses the "up" or "down" pushbutton at the electric motor. The over-all job is done very quickly.

NEW LUNKENHEIMER STAINLESS STEEL BALL VALVE



Figs. 704-T and 704-B—TYPE 316 STAINLESS STEEL—SIZES ¼" to 2"
TEFLON OR BUNA-N SEATS AND SEALS

- TOP ENTRY FOR EASY IN-LINE MAINTENANCE
- QUARTER-TURN OPERATION
- SELF-ALIGNING BALL
- STRAIGHT-THROUGH FLOW
- COMPACT DESIGN
- LOW OPERATING TORQUE

PRECISION PERFORMANCE IN CORROSIVE SERVICE

Now you can have the corrosion-resistance of Type 316 Stainless Steel in the same Lunkenheimer Ball Valve design that is proving so efficient in bronze. Every part, including the Teflon or Buna-N seats, is precision machined to provide leakproof performance in corrosive liquids, gases, and slurries. Corrosive atmospheres are no threat to solid Stainless Steel bodies and bonnets. Recommended for both pressure and vacuum applications.

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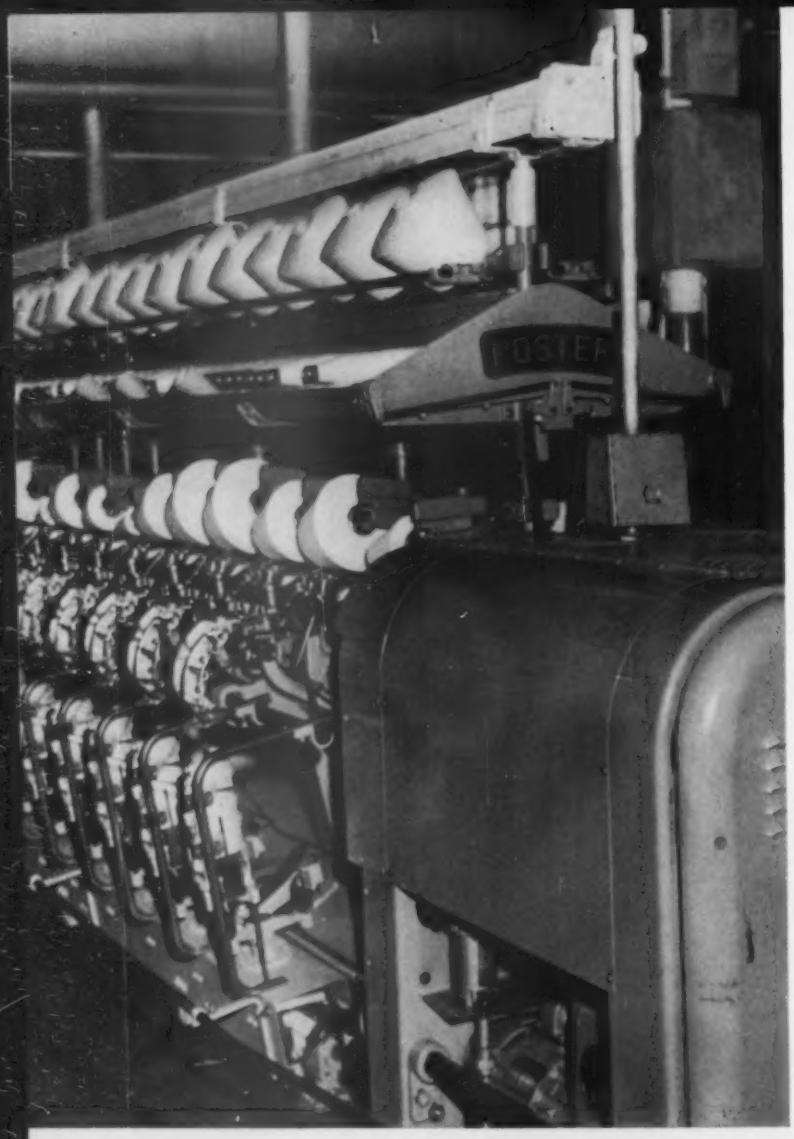
L-561 24



NEW WINDER has 40 spindles, soon will have 128. It winds knitting cones up to 12 inches in diameter at 1,000 ypm.

With This New, High-Speed Winder, Here's . . .

Winding Productivity Up 100%

A North Carolina sales-yarn mill has boosted worker productivity 100% with this brand-new, high-speed winder. Here's what the winder looks like, how it runs, and what the mill thinks of it.

WINDING cost slashed. Operator productivity up 100%. Direct labor cost down 30%. Better quality yarn. Fewer knots.

That's the winding story at A. M. Smyre Mfg. Co., Ranlo, N. C. Reason? Installation of a newly developed winder.

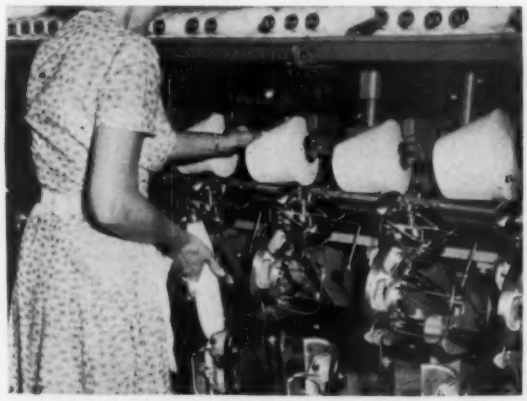
High winding cost has always been a soft spot in sales-yarn mills. And Smyre is no exception. Quality must be good at all times, and knots must be kept to a minimum.

To meet these conditions and at the same time reduce cost, Smyre's top-management team—Fred L. Smyre Jr., president and treasurer, and D. Hunter Cauble, general superintendent—began looking several years ago for a high-speed, cost-cutting winder that does not rely on a fully automatic knot tyer. The search led them to Milan, Manchester, Atlantic City, Greenville—anywhere they could see and study new, advanced machinery.

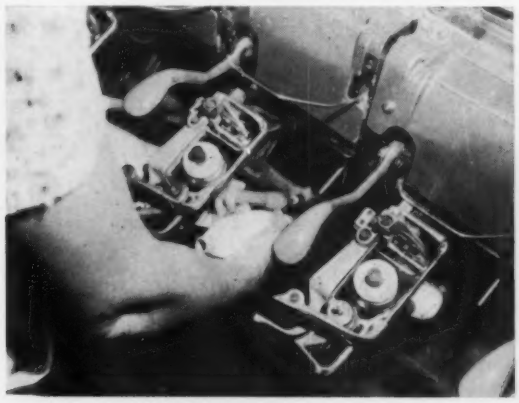
When Foster Machine Co. in

. . . . . What You DO . . . and What You DON'T Do

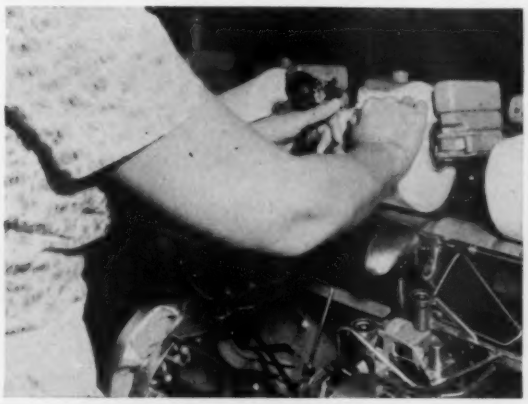
IN CREELING—Full bobbin is removed, pocketed in index chute, automatically positioned. Time: 0.04 minute.



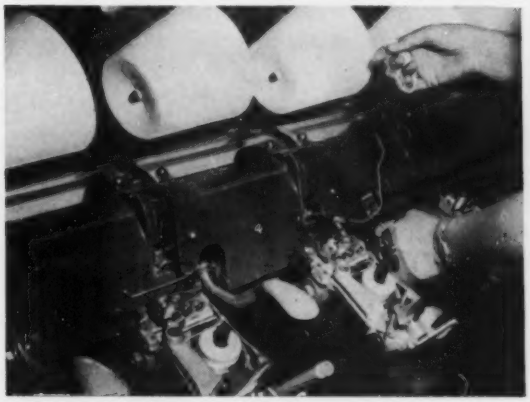
IN REMOVING and replacing bobbins—No hands needed. Both jobs are now done automatically.



IN KNOT TYING—End is tied with knotter on left hand, spindle started with right. Time: 0.04 minute.

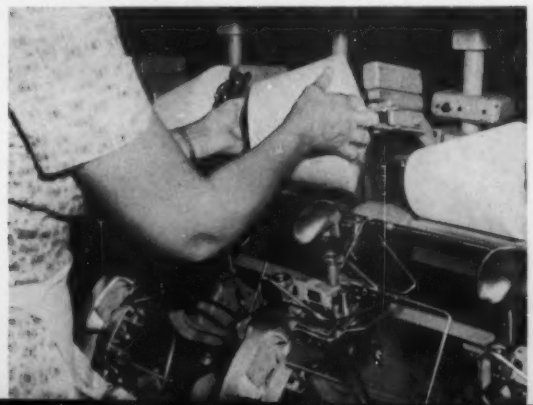


IN THREADING and starting spindle—This job is no longer needed. In addition, no more operator fatigue.



IN DOFFING—Two hands are used to doff full cone, as with manual winders. Time: 0.02 minute.

IN SIZING the package—Gaging is not needed now. Knife cuts yarn when packages reach a predetermined level.



WINDING PRODUCTIVITY UP 100% . . . *Begins on page 120*

1960 announced its development of a new winder (Model 506) that doubles operator production, Mr. Smyre and Mr. Cauble immediately asked for delivery of the first available machine. They installed it about a year ago. Now they have thoroughly tested and evaluated it under production conditions.

"One reason for installing the 506," says Mr. Cauble, "is the machine's high speed. It runs 1,000 rpm., eliminates three operator activities, and doubles operator productivity. Another reason is the absence of an automatic knot tyer.

"Automatic knot tyers are fine—unless they get out of order. A malfunction here can get you in a lot of trouble. It can disrupt the entire winding cycle—cause loose yarn, uneven package density, crossed ends, rough yarn, and many other defects.

"Smyre's standards are such that we cannot allow bad yarn to slip past the operators and reach our customers. Nor can we afford excessive downtime for knotter repair. All tests indicate that the 506 meets our rigid requirements, and it works nicely in conjunction with our Gwaltney spinning."

The 40-spindle test winder at Smyre will be enlarged to 128 spindles. Winder is equipped with overhead traveling cleaners (Parks-Cramer). Maximum number of spindles available for each machine is 144.

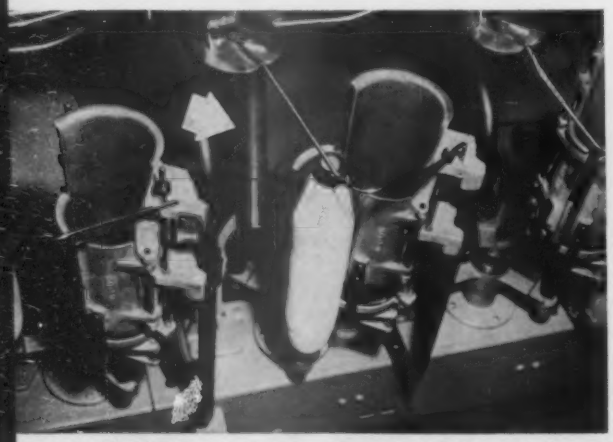
Smyre spins from 14s to 30s knitting yarn. Average number is 20s. Knitting cones up to 12 inches in diameter can be made on the 506. The machine is fed from 10- to 12-oz. bobbins.

In addition to running at high speed, the 506 is easy to operate. It eliminates the following operator activities (necessary for manual-type frames): (1) removing and replacing bobbins, (2) threading and starting spindle, and (3) gaging the package. On the 506 the operator can find the end, pocket the bobbin, tie the knot, and restart the spindle in 0.08 minute. Creeling takes approximately 0.02 minute.

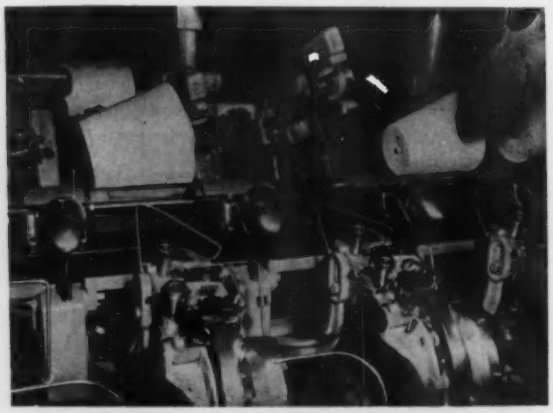
The winder has an automatic lubricating system (Alemite) that breaks the oil into a fine mist covering all moving parts.

The manufacturer's cost analysis indicates that the Smyre frame is saving about $5,000 a year in operating costs over manual winding. Foster bases the absolute rate of return on 20s yarn at 300 pounds per hour.

On these pages you see pictures that show details of the winder in operation and how it works.

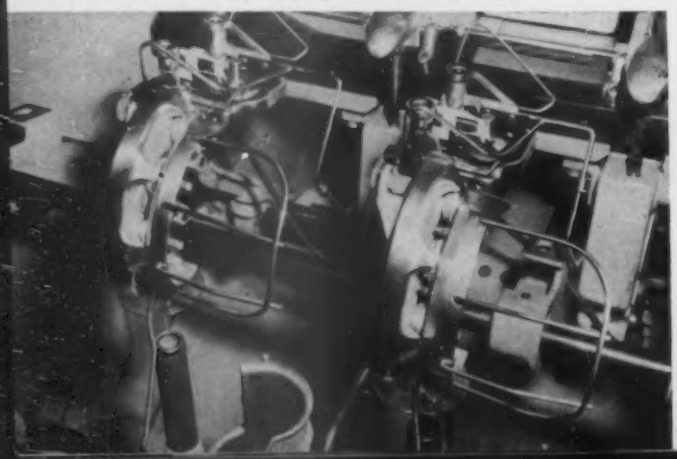


POSITIONING the bobbin—Empty bobbin (arrow) flips off spindle. Then full bobbin swings into place.

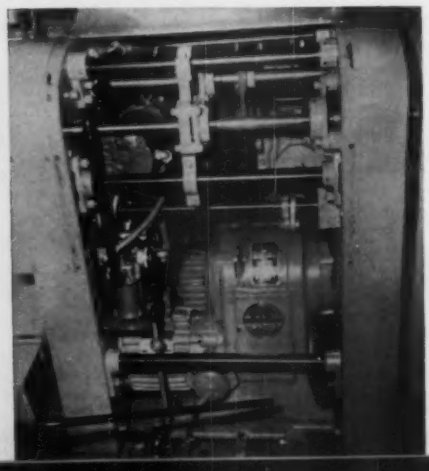


BUILDING the cone—Improved yoke with dampening device puts positive pressure on cone arm for better packages.

CONTROLLING tension—Self-cleaning electrically activated magnetic disk exerts a gentle, progressive tension on yarn.



LUBRICATING the winder—Automatic lubrication system breaks oil into fine mist that covers all moving parts.



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So, remember, finding the right valve can be a simple matter when you specify Powell Valves. For further information, call your nearby Powell Valve Distributor (there's one in every major city), or write The Wm. Powell Company.

*Registered tradename of the International Nickel Company.

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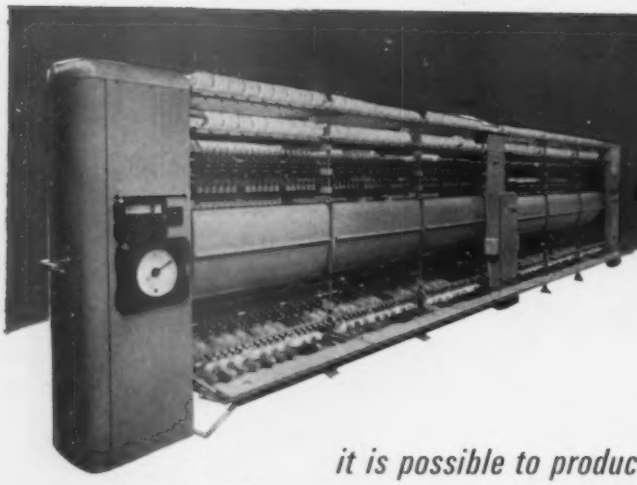
CIRCLE 123 ON READER SERVICE CARD



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with the highest possible covering power and high dyeing regularity for

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KNITTING

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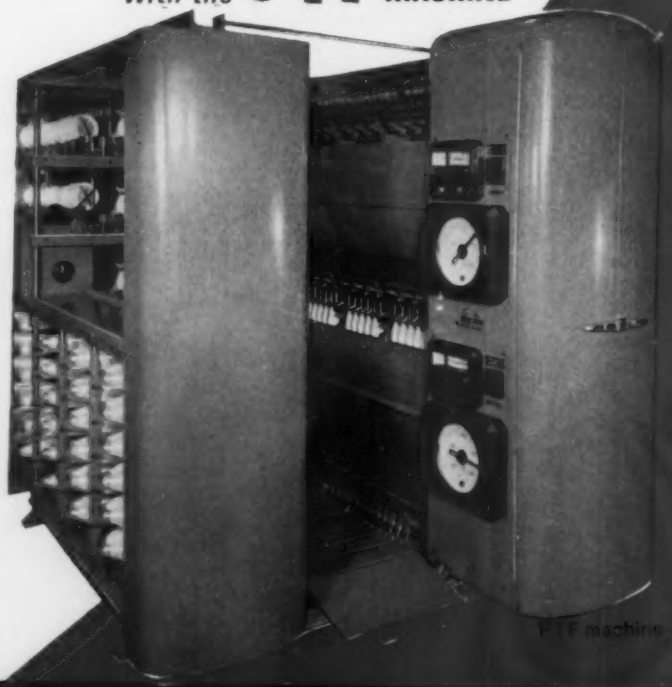
This machine is based on the same principles as the MODEL FT MACHINE for bulked yarns with high stretch. It has similar basic elements but incorporates the following improvements :

(A) automatic yarn cutters on single ends, thus reducing supervision of the machine

(B) new crossing box for high speed processing of coarse deniers

(C) large take-up capacity on :
- tubes for direct use
- cakes for dyeing
- flanged bobbins

The equipements listed under A and B can also be supplied for the FT machine



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Manpower Management

By PAUL A. KING, Labor Relations Counsel, New York City

A Textile First: The Labor Department filed for an injunction to compel a rug manufacturer and two of its officers to file detailed reports on its arrangements with an outside labor relations consultant—a detective agency. It was the first action brought to enforce the reporting requirements of the Labor Reform Law. According to Labor Secretary Goldberg, the agency furnished the manufacturer with information about the activities of the employees and the Textile Workers Union.

Insurance for the Retired: Retired employees of Jefferson Mills, Georgia, receive from the company, at no cost, insurance furnishing $10 a day hospital benefit for 31 days, $60 for hospital extras, and up to $150 surgical. Insurance also pays 80% of their bills above a $400 deductible with a maximum benefit of $5,000. How is the program going over? A company representative stated: "I wish all of you could have heard our retired people express their appreciation."

Employee Withholding Money: It's not the company's money, warned Internal Revenue Service Commissioner Mortimer M. Caplin as he announced a new program of cracking down on employers who do not turn over promptly employees' withholding pay.

Employee Morale Surveys: They are wasted, points out the National Industrial Conference Board, unless you follow up with a discussion of results with those surveyed, and this takes time and effort. This was one conclusion reached by the board after it surveyed the experience of 155 companies. Other conclusions: It's a rare survey that doesn't show the need for more employee information in such areas as company policy, pay practices, benefit plans. Employees want more information on how the company is doing. Few workers understand how pay levels are established.

Fighting on the Job: If a court dismisses charges against an employee who was a defendant in an assault and battery case, don't assume that both workers are equally guilty. Make your own independent determination and act accordingly. Proof required by a court in a criminal action often is greater than that required to support a plant discharge.

It's the Atmosphere That Counts: Bonham Cotton Mills in Texas has been negotiating with the United Textile Workers for over a year. Bone of contention was pay increases and workloads. During negotiations, the company increased pay, made workload changes without consulting the union. Ruled a Federal Circuit Court: "In the atmosphere of this case . . . these two actions amounted to a failure to bargain as well as unfair labor practices."

Flexible Management and Low Prices Go Hand in Hand: Like love and marriage, there's an intimate connection between the two. This is illustrated by the recently signed, unprecedented union agreement for the building trades. The contract gives the builder the sole right to manage his business, to use any construction methods he wants, to use any tools, and to use factory-fabricated units. Because of these and other savings, the builder will be able to sell for $14,000 a house that otherwise would have sold for $18,000. And all this despite a 10% wage increase.

Antiunion Instructions to Supervisors: Although supervisors are not protected by the Taft-Hartley Act, the National Labor Relations Board found that the firm had violated this law when it fired a supervisor for refusing to discriminate against union members as instructed. The employees knew why he was fired, thus their organization rights were trampled on.

. . . Turn the page

Manpower Management

. . . *Begins on page 125*

Appraising Employee Performance: There's too much pussyfooting in discussing an employee's performance with him, Professor of Psychology Mortimer R. Feinberg advises readers of American Management Association's magazine "Supervisory Management". The trouble with the standard approach of first complimenting then criticizing him is: He may only remember his virtues. The criticism may completely negate the compliment and the employee may see through the whole thing as a "technique." Feinberg recommends this 3-step procedure: State his weaknesses first, then his strength, and then discuss his future.

Sick Leave During Storms: Generally, sick employees are entitled to sick-leave pay for a specified period. Suppose during a sick-leave period there has been a rough storm causing the plant to shut down? If storm-struck employees are not paid for the time lost, would you have to pay those home on sick leave—even though being well, they couldn't have gotten to the plant? If not to pay has been a longstanding practice, then you're okay, ruled an arbitrator. But, if this is something new with you and your rule is not crystal clear, think twice before you dock.

Disability Pensions: They're tax-free sick pay, ruled the Tax Court, even though granted under a pension plan. In the case which gave rise to this ruling, the employee "retired" at age 58 under the permanent disability provisions of the company's plan. At age 60, he would be eligible for early retirement. Such payments are still sick pay—including those made after age 60, said the court.

Crazy, Man, Crazy: A company has the right to suspend an employee and require him to undergo psychiatric examination if it suspects he is "off"—but its suspicions must be well-supported by evidence, ruled Arbitrator Carroll R. Daugherty. A recent case emphasized the need for positive action. The New Haven Railroad was socked with a $96,000 judgment awarded to a railroad fireman's wife. The fireman had been shot and killed by his fellow employee. Seems that the railroad was negligent in retaining an employee who it had reason to believe was a psychiatric case.

New Minimum Wage Law: Who is covered . . . who is exempt? How has the old law been amended? For $2.00 get Commerce Clearing House's new 128-p. explanation of the Wage-Hour Law as amended. Order from CCH, 425 13th Street, N. W., Washington, D. C.

Union Contract Strictly Enforced: The union contract called for pay on a specific day of the week. The company overlooked it one week—and employees didn't demand it that day. Still a contract violation, a Wisconsin Employment Relations Board decided.

Excessive Absenteeism: What is it? It must be determined in each case from the facts. Said one arbitrator: The answer depends upon employee's previous attendance record, reasons for his absences, management's acquiescence, effect of his absence on plant operations, and morale and discipline of other employees. In an arbitration involving the Rock Hill Printing & Finishing Co., the arbitrator was more specific: An illness or injury or physical disability necessitating one or more absences per week prevents an employee from meeting his obligations to the company and to his fellow employees, and regardless of the reason for such absences, he may be discharged. Another arbitrator ruled: "The profitable operation of a plant and the consequent economic well-being of the employees depend on the regular attendance of employees. A plant cannot operate without assurance that its employees will come to work. The disruption of work schedules because of the necessity of replacement of the absent workers places a serious burden on the company in planning its production. It should be under no obligation to retain an employee who is so habitually ill or suffering from injury as to make his services of little value to the company. While conceding that long service entitles an employee to special consideration, the interests of the company and its working force outweigh the interest of the individual employee."

Runaway Plants: To prevent its plant from running away, the Allied Industrial Workers Union agreed to a cut of 16¢ an hour in fringe benefits. The firm: Reliance Division, Eaton Manufacturing Co., Massillon, Ohio.

"Made OF Stainless Steel ...Made BY Jenkins"

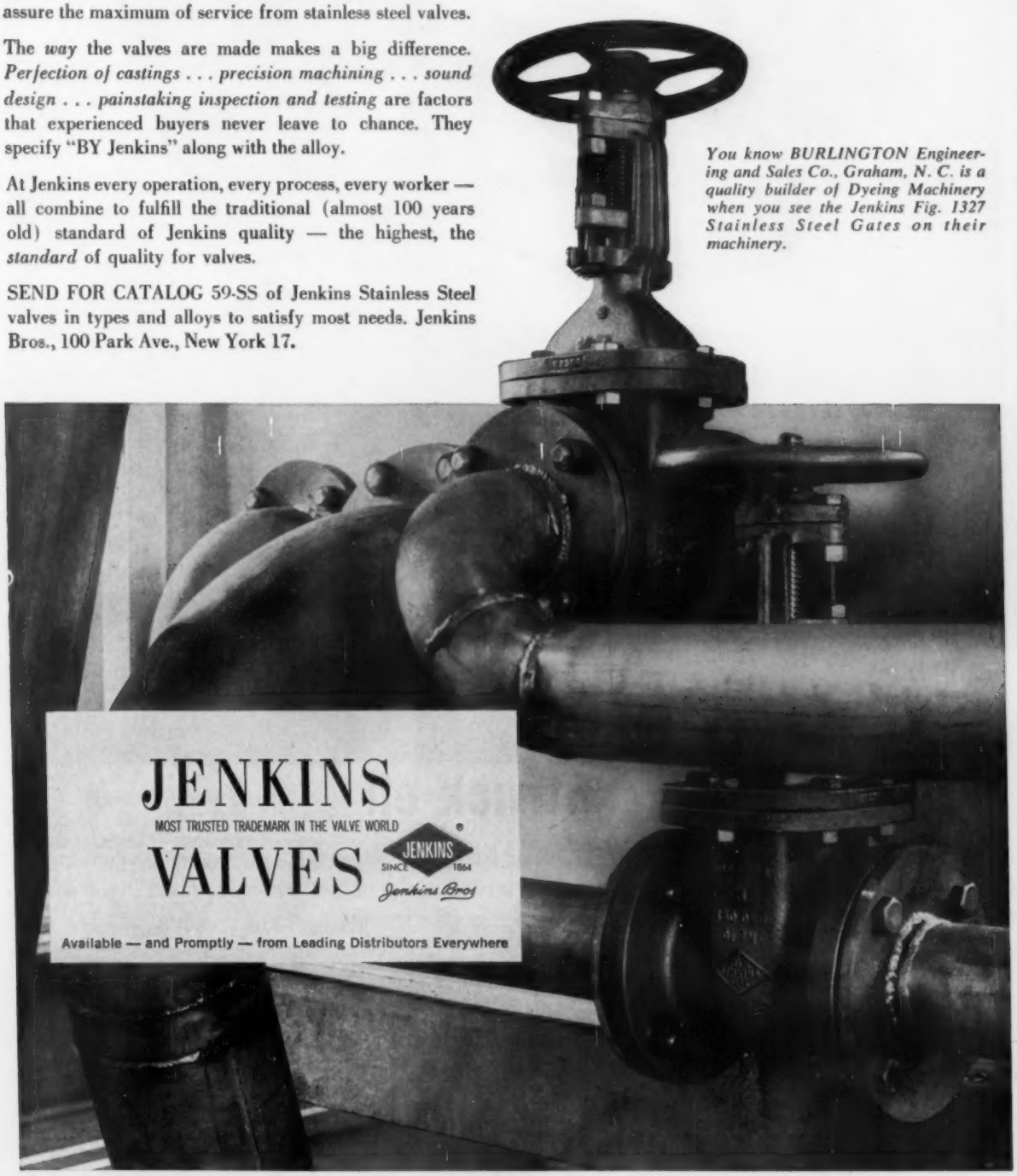
Write the COMPLETE SPEC for an extra-measure of service

Of course the metal, the alloy, is important when applications require stainless steel valves. But the specification for a suitable alloy is only half the specification needed to assure the maximum of service from stainless steel valves.

The *way* the valves are made makes a big difference. *Perfection of castings . . . precision machining . . . sound design . . . painstaking inspection and testing* are factors that experienced buyers never leave to chance. They specify "BY Jenkins" along with the alloy.

At Jenkins every operation, every process, every worker — all combine to fulfill the traditional (almost 100 years old) standard of Jenkins quality — the highest, the *standard* of quality for valves.

SEND FOR CATALOG 59-SS of Jenkins Stainless Steel valves in types and alloys to satisfy most needs. Jenkins Bros., 100 Park Ave., New York 17.



You know BURLINGTON Engineering and Sales Co., Graham, N. C. is a quality builder of Dyeing Machinery when you see the Jenkins Fig. 1327 Stainless Steel Gates on their machinery.

Struck oil

No, let's not get carried away. You won't necessarily hit the jackpot simply because you use Du Pont fibers. But we do claim that these are the best-known, most trusted and preferred man-made fibers in the world, bar none. And Du Pont keeps building this preference through a strong advertising program, including network TV, magazines, newspapers, radio... Fibers are just one factor in your operation. An important factor, though. You've a far better chance for far better business when you feature Du Pont fibers on your labels, in your advertising and in your selling plans.

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What's New This Month in . . .

Fibers, Yarns, and Fabrics

By NOREEN HEIMBOLD, Editorial Assistant, TEXTILE WORLD

Moldable Nylon

A permanently molded fabric made of nylon is in commercial production at Liberty Fabrics. Thirty-four brassiere manufacturers are planning to market bras molded from this revolutionary fabric. Initially, the new product will be made of lace. It's name: Libform.

The seam-free cup eliminates many cutting and sewing operations. There's a permanence of size and shape that machine washing and drying can't change.

Chemstrand developed the special nylon yarn that differs from regular nylon in molecular structure. The fabric is expected to expand to lingerie, shoe, and auto-upholstery fields.

Blended 50/50

A 50/50 blend of Creslan and wool marks a lightweight fleece-type fabric designed for coatings. Einiger Mills manufacturers it, calls it Huaraza II.

Pearsall Bros. has designed two styles in the new fabric, one formal, the other informal. Colors are blue, green, gold, red, and brown.

Fibers for Rockets

H. I. Thompson Fiber Glass Co. has come up with a fiber that promises to solve high-temperature insulation problems in the aircraft and missile fields. The product, Hitco-C, is pure carbon. It provides both thermal insulation, and when combined with phenolic resins, a barrier to erosion. This erosion occurs when high-flying missiles re-enter the earth's atmosphere.

Hitco-C has successfully undergone firing tests, and engineers are now designing it into rocket engine parts.

It is available in fiber form or fabric rolls 33 inches wide and at least 50 yards long.

Rayon Ups Strength

Callaway Mills is now weaving Avisco XL-I rayon into its wrapped hose fabrics. These hoses are used for dredging, refueling aircraft in flight, and handling water.

The fiber has a high wet strength, good resistance to fatigue and flexibility, and good adhesion. It absorbs shock loads well. Cost per pound of tensile strength is low.

Most of Callaway's hose fabrics are made in 8, 10, and 17 ounces per square yard constructions.

Dynel to Decorate

Decorative fabrics of 100% Dynel are available from Wayne Weavers Mills. The fabric can be molded, embossed, or stiffened to permanent three-dimensional designs. It's slated for use as speaker grille cloth and upholstery covers.

Patterns and colors (some solution-dyed) are designed to blend with various furniture motifs. It comes in 54-in. width.

New for Bedspreads

A filament-textured acetate yarn especially successful in producing an heirloom bedspread effect is now on the market. Celanese Fiber Co. has developed the yarn, calls it Celacrimp.

Concord Mills uses the fiber combined with cotton in its bedspread, Tara Hall. It's machine washable, quick drying, needs no ironing. Retail price is $17.95 for both twin and full sizes.

Bags Now Knitted

A new material to replace burlap for bagging is now in production at Fulton Cotton Mills. Called Durlap, the fabric is knitted from "thread" made of wood-cellolose fibers. It has no lint, odor, grease, or oil. It is water repellent, is as strong as burlap, and has a more resilient knit construction.

At first, Durlap will be used as knit tubing to cover roll goods at textile mills and finishing plants. It is made in widths from 30 to 54 inches, suitable for covering rolls 8 to 24 inches in diameter.

NEWS BRIEFS . . .

Slippery laminates—A simplified process for post-treatment of laminated fabrics to make them slippery is now available from Reeves Bros. The new treatment, called Curon E-Z, makes laminated fabrics easier to sew.

Stronger tire yarn—American Viscose Corp. is making a Tyrex rayon tire yarn that is 15% stronger than current yarns. Tensile strength: over 40 pounds in a standard 1650 denier two-ply cord.

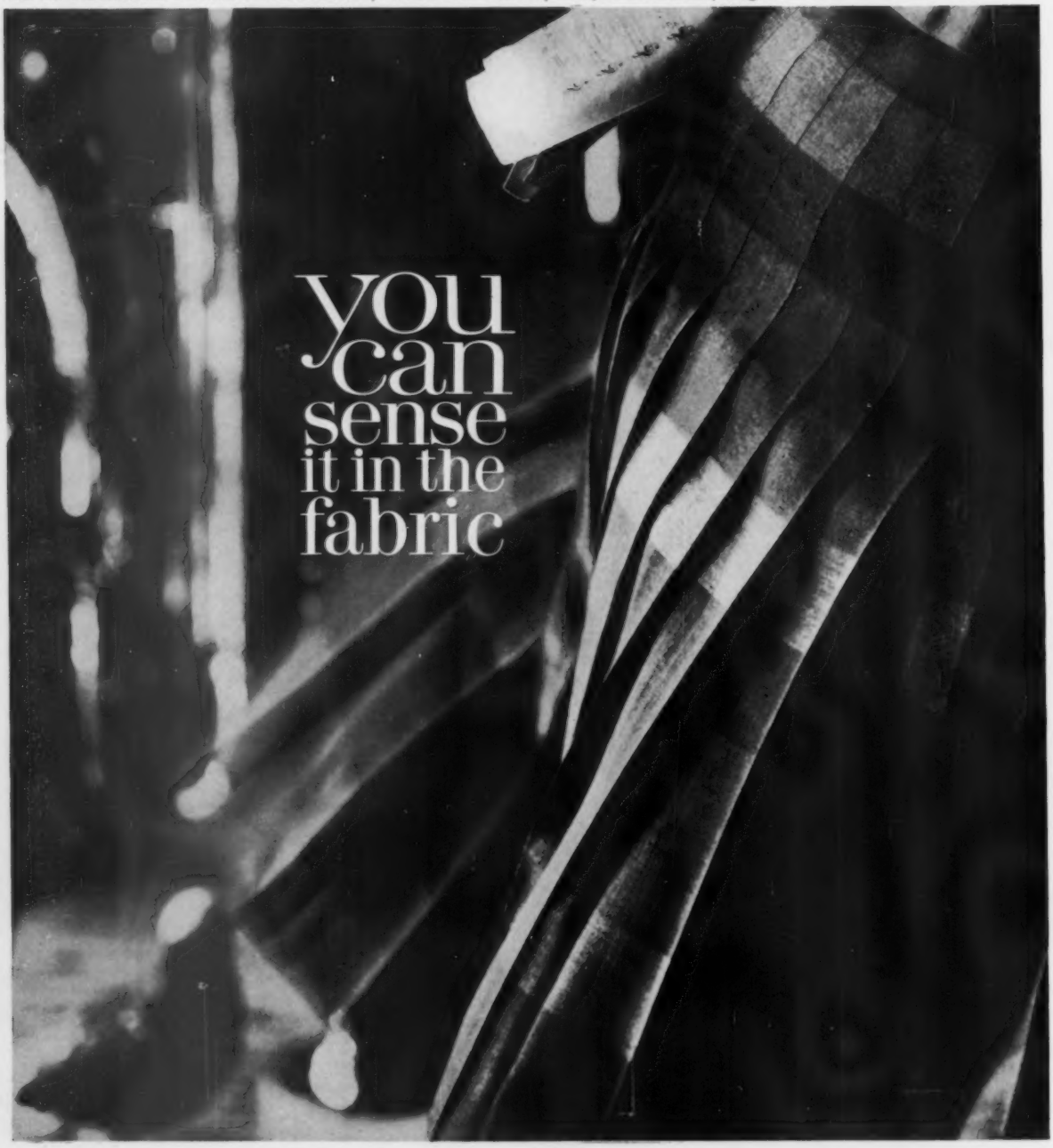
Second expansion—United States Rubber Co. has doubled production facilities of its Spandex yarn, Vyrene, to meet the growing demand. It's the second expansion of the Gastonia, N. C., plant this year.

Two-faced towels—Reversible kitchen towel with a terry side for drying and a plain side for shining is a new development of Cannon Mills.

Permanent creasing—A simple chemical process guarantees a permanent crease through any kind of moisture. It was developed in Australia and adapted for American manufacture by the Wool Bureau. It's geared for boy's clothing.

Shamrocks—The Irish Fabric Knitters Group has adopted the shamrock as an identifying mark. This trademark, consisting of an interlocked knitted loop, will mark all tags and labels of exported fabrics.

AS APPEARING IN: New York Times, The New Yorker, Harper's Bazaar, Vogue



The Vitality of Creslan...the fiber with the six senses of fashion.
Vitality is one of the six senses of fashion. It is animation, verve, endurance...an unquenchable spirit. It can stand up to life, because it is the very breath of life itself. Now, Creslan acrylic fiber is breathing this lasting liveliness into everything from clothes to floor coverings. Creslan sparks fabrics with new color vibrancy, helps wrinkles disappear, keeps fashions fresh and neat with least care. Look for them. You'll enjoy all six senses: vitality, lightness, color, taste, touch, and beauty. American Cyanamid Co., N.Y.

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WHITIN HAS A WAY WITH TWISTERS

...in Novelty Yarns

KING SIZED packages mean KING SIZED savings!

King-sized packages made on a Whitin Pacemaker Twister carry up to four times as much Novelty Yarn as those on an average twister.

These giant packages — the result of combining the productive capacity of the Pacemaker Model P Twister with the flexibility of the Type C1 Novelty Yarn Attachment, make possible king-sized savings, too — savings such as: a major reduction in knots; sizeable reductions in doffing and maintenance time; and greater production per square foot of floor space.

The Pacemaker Model P is a competitive, high speed, skillfully-built Twister capable of producing, with little or no loss in operating speed, bobbins of 11" traverse and up to 5" in diameter, using 5½" diameter rings.

The famous Whitin Type C1 Novelty Yarn Attachment already has an established reputation for excellent performance based on its precision, its simplicity and its versatility.

FEATURES:

- Fewer knots
- Reduces doffing time
- Reduces maintenance time
- Greater production per square foot of floor space
- High-speed operation
- Duplex Splash Yarn and Rocker Motions — optional

In bringing together this unusual cost-cutting combination, Whitin effectively meets today's increasing need for large knotless packages in the heavy fabric field — for products such as domestic upholsteries, automobile fabrics, rug yarns and draperies.

See your nearest Whitin representative for details.

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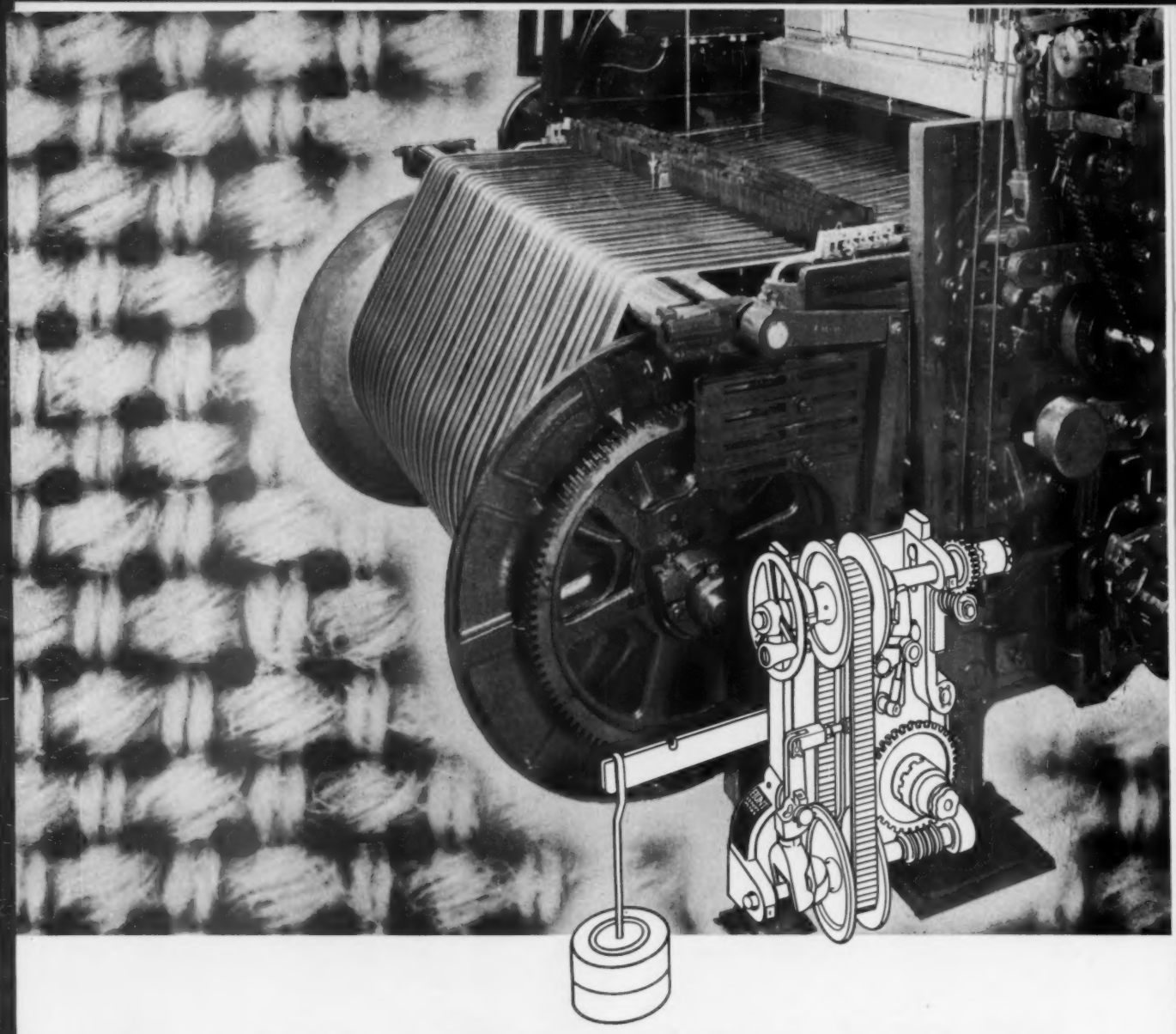
The best way to better yarns



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When you apply the Hunt Let-Off® to your looms in use or specify it on new C & K or Draper Looms.

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CIRCLE 132 ON READER SERVICE CARD

TEXTILE WORLD... News from the Mills

Amerathane Industries, Inc., New York, has been formed in association with Milpac Dyeing Co., Inc., and Knit Goods Brushing and Finishing Co., Inc. The new company will specialize in urethane foam lamination for the textile and related fields.

Burlington Industries, Inc., Greensboro, N. C., has purchased all properties and equipment of the Globe Mills Co., with plants at Mount Holly and Lincolnton, N. C.

Continental Mills, Lewiston, Me., has shut down. The plant and equipment were purchased earlier this spring by Pat Hall Enterprises of Charlotte, N. C. Mr. Hall said efforts will be made to bring a new industry to the mill.

Cowikee Mills, Eufaula, Ala., is beginning a modernization program that will cost more than $1-million. The mills were completely modernized only four years ago at a cost of $1.7-million.

Deering, Milliken Research Corp., Spartanburg, S. C., is building a processing and spinning research unit. The company and the membership of the Institute of Technical Technology jointly developed plans for the new facility. The firm is also expanding its chemical research facilities.

Gibbs Underwear Co., Philadelphia, has sold its Philadelphia plant for $250,000 and is transferring its machinery to Lincolnton, N. C. Sales and accounting offices will remain in Philadelphia.

B. F. Goodrich Co., Thomaston, Ga., is installing double-apron Roth high-draft change-over on 80 Saco-Lowell frames.

Greenwich Printing & Dyeing Co., East Greenwich, R. I., a division of Calvine Mills, Inc., has reopened and plans to expand into a complete printing and finishing plant. The mill will add dyeing, napping, compressive shrinking, and embossing operations.

Greenwood Mills, Greenwood, S. C., is representing Harmony Grove Mills of Commerce, Ga. This marks the first time Greenwood has represented an outside mill.

Huntley Knitting Mills, Inc., and Charlotte Finishing Co., Charlotte, N. C., are combining their operations and building a $500,000 plant at York, S. C. The two firms will move all their operations to York.

Jantzen, Inc., Portland, Ore., has completed a $500,000 executive office building in Portland. The 22,-000-sq.-ft. building contains a swimming pool that will be used to test new fabrics and swimwear.

A. D. Juilliard & Co., Inc., New York, a division of United Merchants & Manufacturers, Inc., has gone out of the fabric manufacturing business completely. The parent company will retain the Juilliard name and corporate structure. It is setting plans for a licensing program on finished garments.

Koury Hosiery Mills, Inc., Burlington, N. C., is building a $150,-000 addition to its facilities in the Alamance Industrial Park. The present area will be doubled with the completion of the 40,000-sq.-ft. addition to the mill.

Landrum Mills, Landrum, S. C., a division of Bigelow-Sanford Carpet Co., Inc., will add a second story to its present plant.

M. Lowenstein & Sons, Inc., New York, and The Mead Corp., Dayton, Ohio, are teaming up to investigate paper-making techniques and their application to textiles.

Maverick Mills, Boston, Mass., is building a 250,000-sq.-ft. plant in Greenville, S. C. Production will start early in 1962.

Mount Vernon Mills, Inc., Baltimore, has established the William E. Hooper Sales Co. as a division. The firm also announced it has purchased the William E. Hooper papermill dryer felt operations.

Pottsville Bleaching & Dyeing Co., Port Carbon, Pa., is building an 18,000-sq.-ft. addition to its plant. The new facility will house a continuous dyeing machine in addition to other dyeing equipment. Total output: 75,000 pounds per day of bleached and dyed tubular fabrics.

Robinson Mfg. Co., Oxford, Me., has purchased the Kezar Falls Woolen Co. of Kezur Falls, Me.

Russell Mfg. Co., Alexander City, Ala., is putting in 16 MagneDraft spinning frames, one 96-spindle Rovematic roving frame, and a one-process picker.

Spartan Mills, Spartanburg, S. C., Beaumont Div., has purchased 32 Model M7, 2-delivery, high-speed Even-Draft drawing frames from the Whitin Machine Works.

The Standard Bleachery & Printing Co., Carlton Hill, N. J., will close its plant here and shift its processing operations to the plant of Millville Mfg. Co., Millville, N. J. Although the firms have agreed to consolidate operations, they will retain their separate identities.

West Point Mfg. Co., West Point, Ga., is constructing a warehouse near Fairfax, Ala. The one-story building will have 212,709 square feet of floor space.

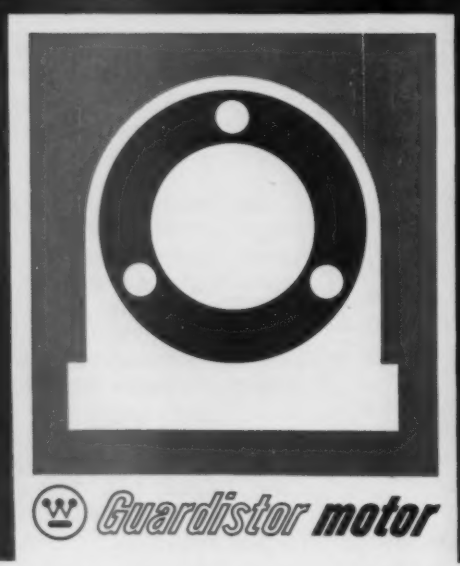
Whisnant Hosiery Mills, Hickory, N. C., has purchased the Komet equipment of O. E. Kearns & Son.

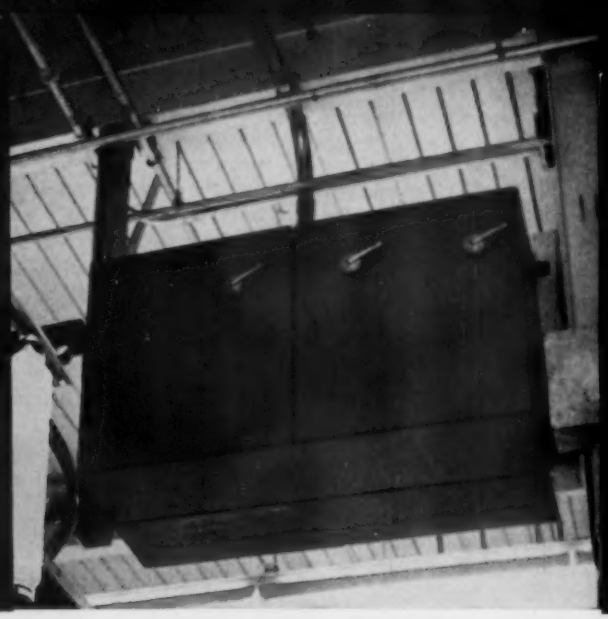
Increase mill profits with this latest Westinghouse textile equipment

The most effective way to deal with profit-squeezing costs is this: *increase productivity*. Every subnormal operation—poor speed, heavy maintenance, emergency shutdown—extracts its price in production losses or higher costs, hence lower profits.

Efficient electrical drive—motors, gearing, controls—has a great deal to do with machine output and dependable performance at production loads. To be really profit-minded, you should examine critically every electrical drive in your mill. Compare them with Westinghouse advanced-design drives. Chances are you'll quickly discover profit leaks that should be stopped.

Let your Westinghouse Sales Engineer help you make a detailed survey of your electrical drives. Evaluate each in terms of profitable production, then see how easily you can solve costly bottlenecks with Westinghouse drives engineered for the job. Write Westinghouse Electric Corp., Box 868, Pittsburgh 30, Pa. *You can be sure . . . if it's Westinghouse*



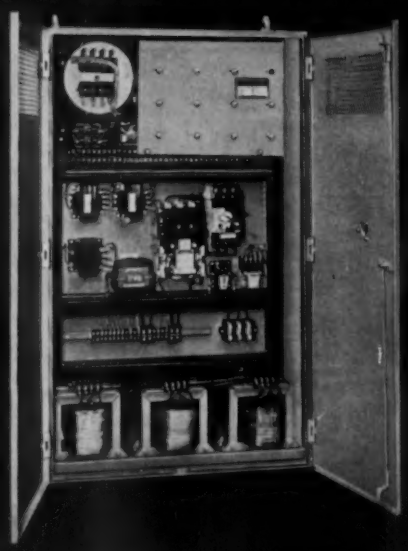


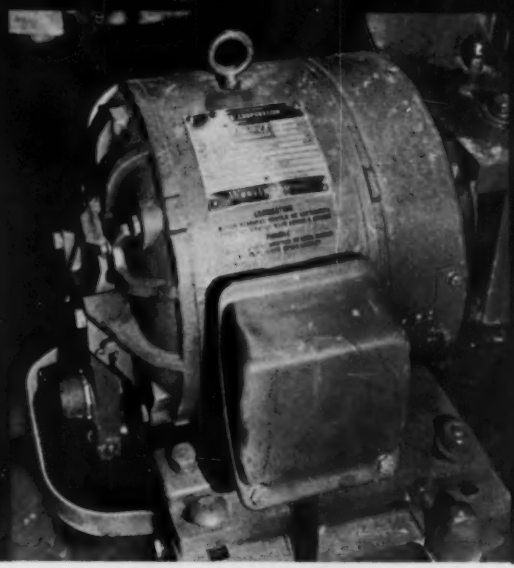
Exclusive GUARDISTOR* design permits Westinghouse motors to run at highest available horsepower without danger of burnout. No other drive offers this built-in static motor protection—an important feature in profitable mill operation.

DynAC—a static rectifier unit that converts a-c to d-c for smooth, accurate braking of drive motors—is an important money-saver in any mill. Maintenance costs are minimized because DynAC braking control is not affected by moisture, temperature, oil or humidity. Multiple units save power on every brake application.

CIRCLE 134 ON READER SERVICE CARD

Westinghouse





AVR adjustable speed drives are ideal for slasher drive, with d-c motors for operation over a wide range of speeds. Constant beam tension accommodates variation in weight, number of ends of yarn. Static design reduces maintenance to a minimum.

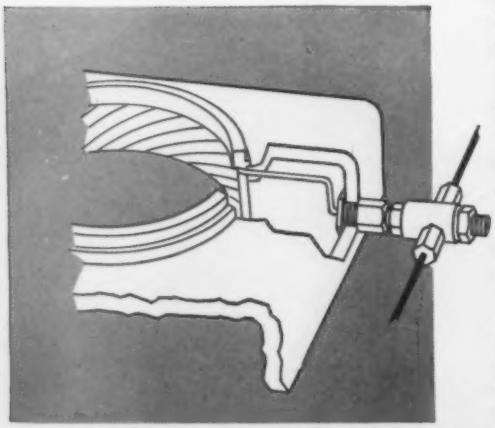
Life-Line A loom motors are ruggedly built to withstand the severe demands of loom service. Totally enclosed, they are designed to operate cooler than ordinary types. Clutch brake motor (illustrated) is capable of extended service at high speeds without maintenance.

J-98185

CIRCLE 135 ON READER SERVICE CARD

ALEMITE FULLY ADJUSTABLE RING LUBRICATION SYSTEM

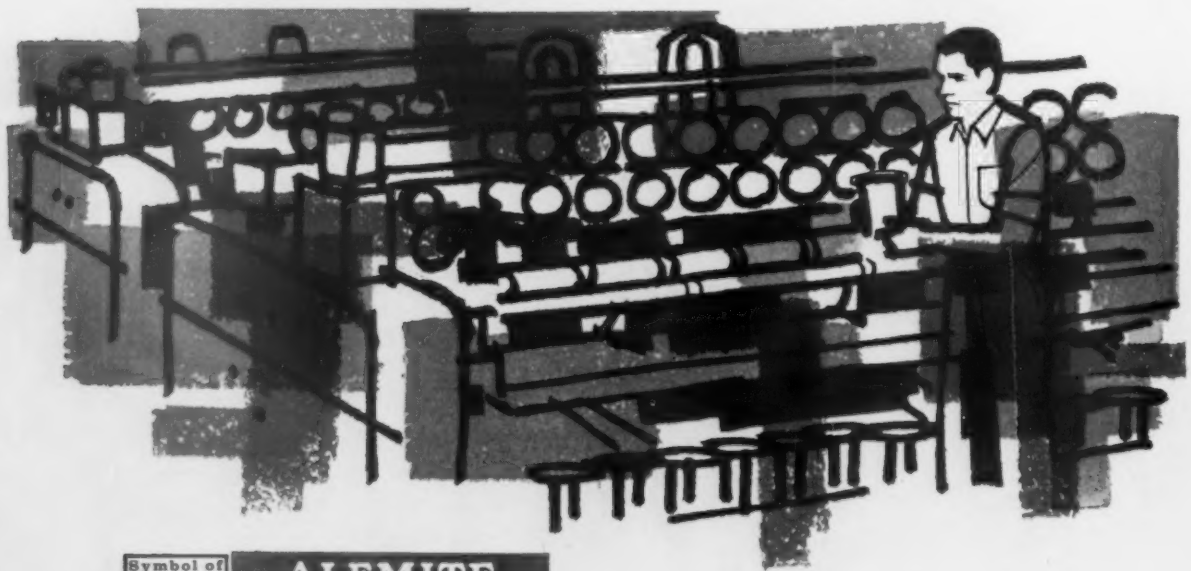
less ends down
cuts product spoilage
equalizes tension
increases ring life
reduces horsepower



This accurate, economical, low-pressure lubrication system increases production because it is fully automatic. Machines need never shut down to be lubricated. It maintains constant, positive lubrication—allows machines to run at higher speeds. Product spoilage is reduced because accurately dispensed amounts of lubricant are so minute, the traveler does not "throw" lubricant.

In addition, this Accumite system completely eliminates leakage between the ring and the frame . . . assuring neater, cleaner lubrication. It meters out positive amounts of lubricant to every ring on the frame rail to equalize tension, provide uniformity of thread—reduce lubricant consumption and prolong ring life. Accumite is adaptable to all lubricated rings.

Benefit from the many advantages by equipping your spinning and twister frames with an Alemite Accumite System. When ordering new frames specify Alemite. *Write today for additional information and free catalog #34-49.*



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For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

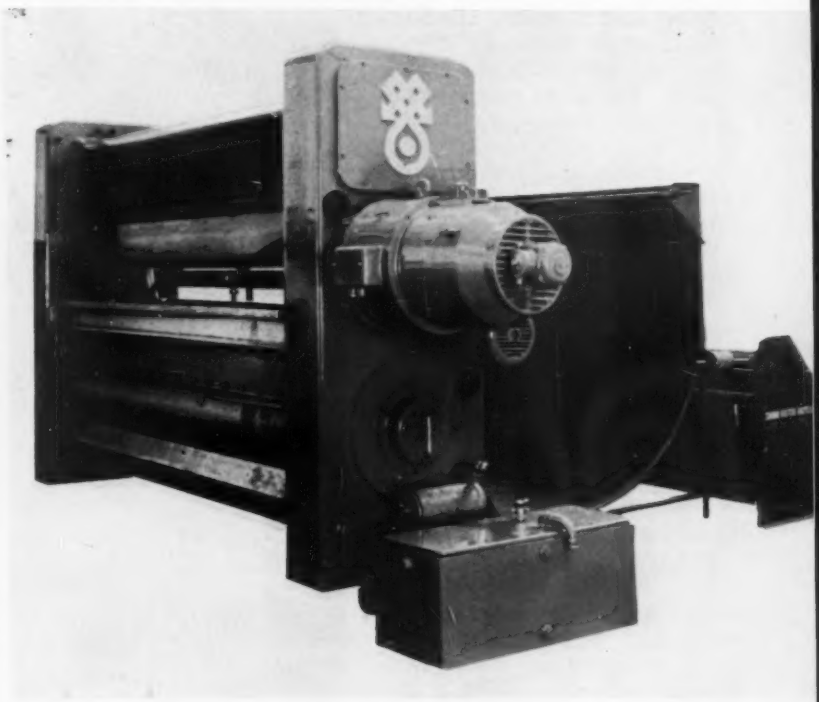
Mangle Increases Drying Speed Up to 37%

You can increase drying time as much as 37% because of the improved moisture extraction made possible by this water mangle, sold by Louis P. Batson Co. The Aquaroll extracts up to 65% of the moisture in cotton fabrics.

It uses a pressure roll that floats on a cushion of water. A two-section aluminum chamber holds the water that is pressurized to 60 psi. to force the roller against the counter roller. Pressure at the nip is evenly distributed.

Water pressure is independent of the pressure at the source. A pump forces water into the pressure chamber at 60 psi. An adjustable valve controls pressure from 0 to 60 psi. Safety valve, in the pressure chamber, protects the system against excessive pressure.

It also works for water extraction after desizing, boiling off, bleaching, washing, and continuous dyeing (before drying). **(Circle E-1 on Reader Service Card)**



Prints Ten Colors at 65 Yards Per Minute

Ten-color printer uses pushbutton control for radial print adjustment. Each print roll has a hand wheel for adjusting lateral fit. The printer, manufactured by Wood's Engineers Ltd., is designed so all adjustments can be made at normal production speed.

Each nip assemble has cleaning and linting doctors driven by independent motors. Control is pushbutton through a speed variator. The doctor oscillation can be changed to suit printing condition.

It handles 60-in. fabric with pattern repeats of 14 to 24 inches. The 60-hp. main motor has a 10- to 1-variable speed drive. The 10-color printer in the photo is set up for 8 colors. **(Circle E-2 on Reader Service Card)**

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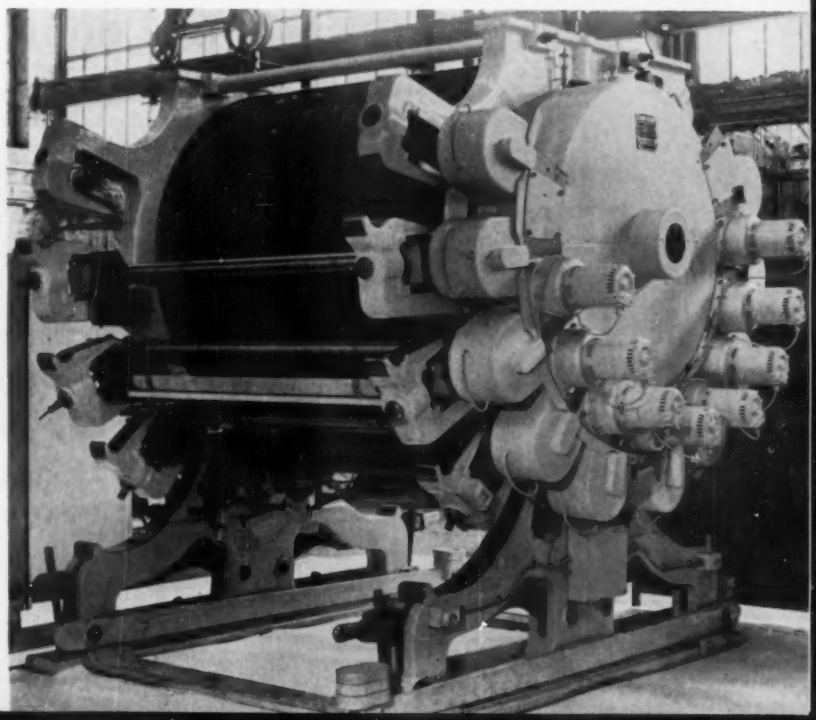


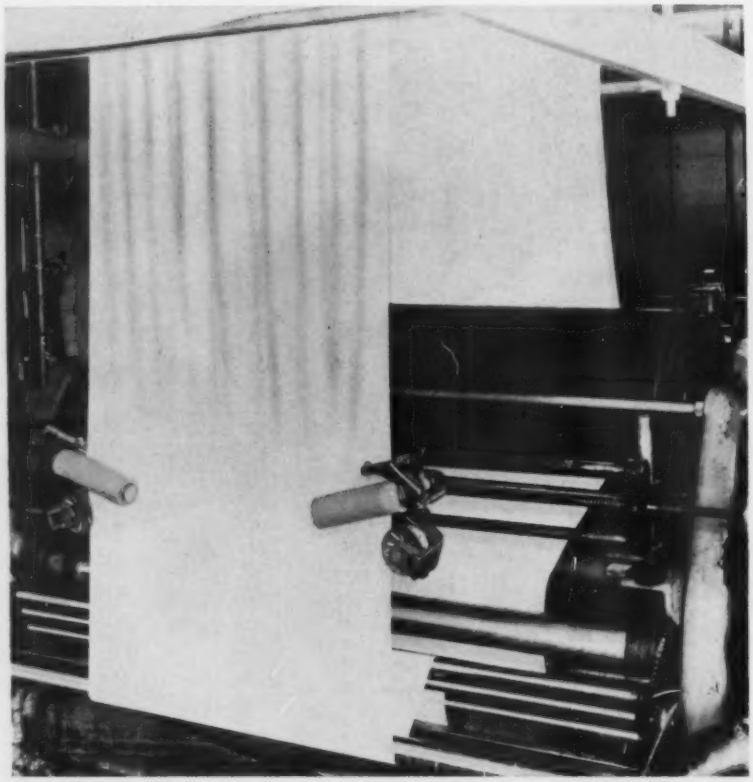
For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

Now — Textile Guider Made From Aluminum

For processing textiles under mildly acidic or dry conditions, Mount Hope Machinery Co. has developed two models of a low-cost guider. Model A, with aluminum frame and stainless steel accessories, is for mildly acidic service. Model B, made from aluminum with some cadmium-plated steel parts, is for dry or damp processing.

This strictly mechanical guider has no electric switches, coils, or air valves. A deflecting shield protects the waterproofed bearings. Result: minimum maintenance and ease of machine washdown.

The guider provides immediate detection for misalignment, and it automatically adjusts for the deviation by tilting a pair of nip rolls (one pair on each selvage). Sensing element is a grooved and fluted selvage wheel that moves with the selvage and controls the angle of the nip rolls. A spring puts pressure at the nip to hold and control the selvage. Unit operates at any angle, in any position, and on any width of flexible material. **(Circle E-3 on Reader Service Card)**



Roll Prevents Creases at Loom

A loom attachment, called Somaco Smoothee, eliminates creases on the cloth roll. It works on high or low roll take-up for man-made-fiber fabrics. Creases on the cloth roll, which become permanent on many man-made fabrics, often result in second-quality production.

Developed by Southern Machinery Co., it takes less than 10 minutes to install. After installation it needs no adjustment or maintenance: It has no moving parts and needs no lubrication. The attachment fits any loom.

It will pay off in a few weeks because it eliminates seconds caused by cloth-roll creases. **(Circle E-4 on Reader Service Card)**

E-5—Yarn monitor inspects yarn at 600 ypm. It analyzes faults and electronically grades them into three groups of thicknesses and five groups of lengths. It can also measure and grade the lengths of small fiber disturbances. William Ewart & Son Ltd.

E-6—Mixing picker with 12 bars can be adjusted to changes in production speed and quality. It works on a variety of fibers. Features: less maintenance through simpler drive mechanism, less lubrication with antifriction bearings throughout, less wear with two direct-drive motors, and less cleaning with removable covers throughout. Its $3\frac{7}{16}$-in. main cylinder operates at 1,000 rpm. Davis & Furber.

. . . Turn to page 140

CHARLTON WOOLEN COMPANY USES

CHARLTON CITY, MASS.

HERR "M" TYPE CONICAL RINGS

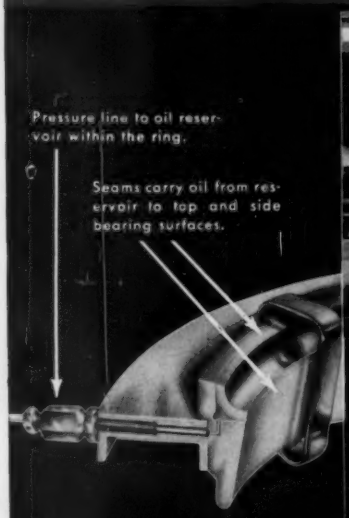
WITH AUTOMATIC PRESSURE LUBRICATION

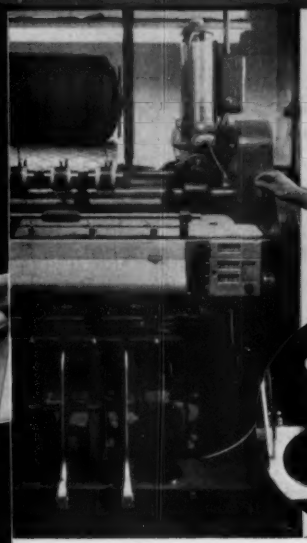
For Better Oil distribution (minimum amount)
— on the path of the traveler

No oil scattering
— on the machine to create maintenance problems
— on the yarn to degrade quality

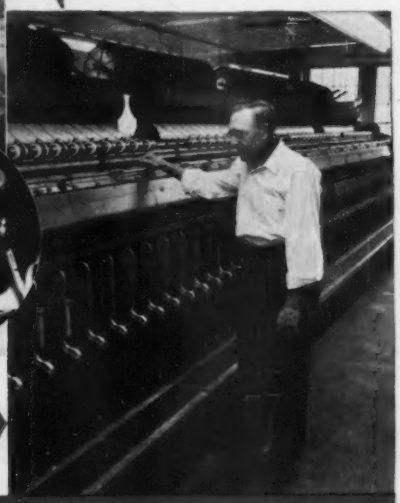
Benefits

LONGER LIFE OF RINGS AND TRAVELERS
HIGHER SPEED OPERATIONS
IMPROVED PRODUCT
REDUCED OPERATING COST





With Herr "M" Type Rings and Controlled Automatic Pressure Lubrication.
"YOU DON'T HAVE TO DEPEND ON THE TRAVELER TO SPREAD THE OIL" says Bob Gard.



Bob Gard, who is overseer of spinning, inspects frames that have been in operation for almost three years.

Illustrations show one of the modern installations at Charlton Woolen Company, Charlton City, Mass., manufacturer of coatings and snow suiting fabrics.

Here's how the system operates: Herr "M" type conical rings contain an oil reservoir running completely around the ring. From this reservoir, seams carry the oil by capillary action to the top and side bearing surfaces of the ring so that the paths of the traveler are continuously lubricated...but with a minimum of oil.

The reservoir is supplied with oil by an automatic pressure system that can be set to give just the right amount of oil . . . eliminating troublesome waste.

After the pump cycle has been established, no supervision is needed. Higher speeds and improved products are possible.

Write for complete information.

HERR MANUFACTURING CO., INC.

309 FRANKLIN STREET • BUFFALO 2, N.Y.

For Spinning and Twisting Worsted • Woolen • Rayon • Nylon • Orlon • Fiberglass and Blended Yarns of all Types

Time was when relocating mill machinery was a costly, major operation. But no more!

With a Unisorb mounting program you can position looms for greatest efficiency today and relocate as often as desired as conditions change — at lowest possible costs. You can save up to 80% on installation time . . . save on lag bolts and screws (not needed), save floors from damage (drilling is not required).

Unisorb reduces transmitted vibration and noise up to 85% — also muffles induced external vibration.

Unisorb vibration-protected looms can be run at maximum speeds, help you realize full production potential.

Unisorb vibration and noise-protected workers do a better job, are less subject to fatigue.

Unisorb keeps machines on the level — wear and tear on moving parts is reduced. One textile mill reports, "Unisorb keeps the rolls of the machine in better alignment. The spinning frame also runs better."

Available in many densities and thicknesses for textile machine mounting. Look for the distinctive red center. For data on loading ranges and specific applications, ask your Unisorb Distributor or write direct.

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PEI-5

Equipment & Supply News

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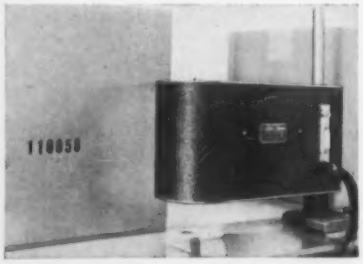
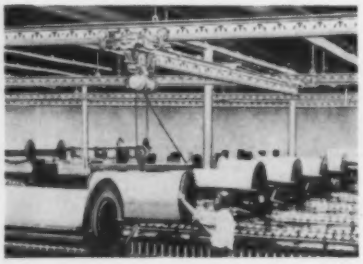


E-7—Numbering device puts consecutive numbers on shipping cases as they travel along a conveyor. It works on boxes as small as 4x6⅛ inches. Six wheels are available in ¾- or 1-in. numerals. Adjusts vertically above 3¼ inches from the bottom. Adolph Gottscho, Inc.

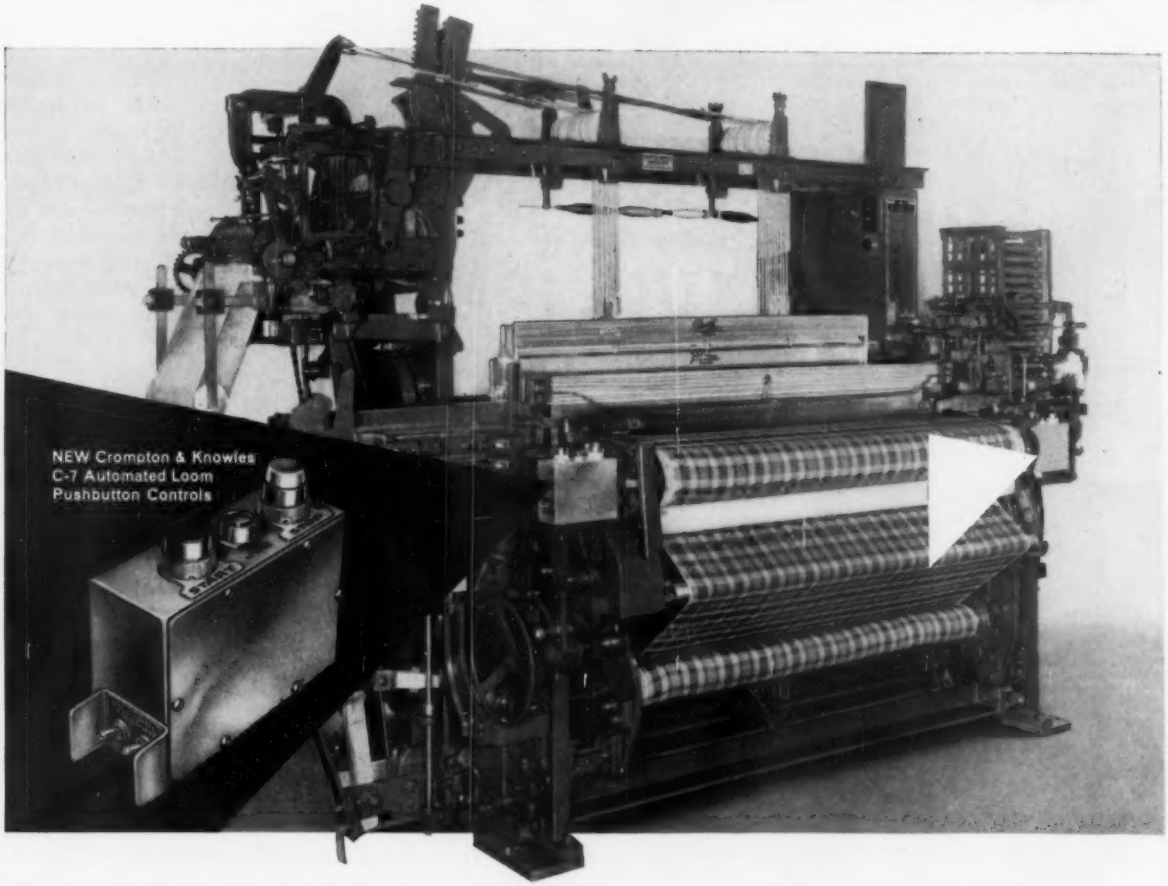


E-8—Track for overhead material-handling service, called Tarca Track, handles heavy, swinging loads. It's a compound section consisting of steel flange, web, and carbon-alloy steel rail all welded continuously end to end. Sizes range from 8 to 20 inches deep. Standard length: 60 feet. Rail deflection under full load will not exceed 1/450 of the span. Flexible track supports, using a ball and socket swivel, help equalize wheel loads, eliminate bending stresses, and promote free rolling of all wheels. Cleveland Tramrail Div.

E-9—Silicone emulsion, called Soluslip-SL, lubricates the polyurethane surface of laminated fabrics. It is diluted in cold water for 6 to 10% solutions and is stable when stored. It makes handling, cutting, and sewing of laminates easy. Soluol Chemical Co.

. . . *Turn to page 142*

Warner electric motion control
gives new loom major competitive advantages



Electric sensing and controlling directly through an electromagnetic drive made possible by Warner Electric Brakes and Clutches

Advantage! Remote pushbutton actuation of Warner electric brakes and clutches permits fast starts, easy start-stop or reverse. Pushbutton control is at operator's fingertips at each end of loom.

Advantage! Electric brake and clutch plus electric protection eliminates a major cause of loom breakage, allows speed with protection, provides flywheel effect for steady, high-speed operation.

Advantage! In case of power failure a capacitor in the control system stores adequate energy to operate brake in *safe* cycle *only*. In normal operation this capacitor overexcites the brake magnet, makes possible rapid operation.

Advantage! All mechanical linkages are eliminated, reducing maintenance. With fewer duties to perform, even inexperienced weavers can operate this loom safely at high speeds, make better cloth.

Alert textile men are looking

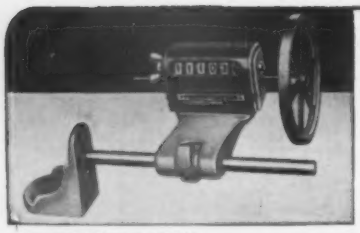
at textile machinery controls that give them a "competitive edge." Warner "electric motion control" provides direct electric actuation, easier control, greater automaticity, and many other advantages you will need on your present and future mill equipment. Write to Warner today for full details and technical data.

WARNER ELECTRIC

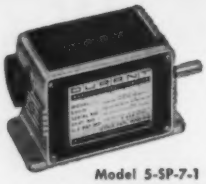
WARNER ELECTRIC

Warner Electric Brake & Clutch Co., Beloit, Wisconsin

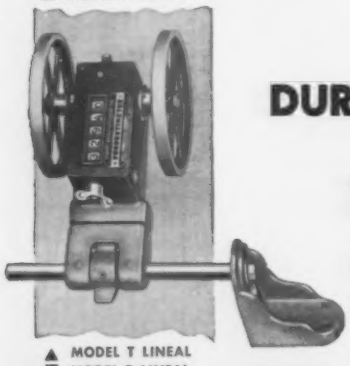
Stocked by Distributors in Principal Cities Throughout the World



▲ MODEL H LINEAL



Model 5-SP-7-1
PREDETERMINED



▲ MODEL T LINEAL
▼ MODEL D LINEAL

ACCURATE, DEPENDABLE
DURANT COUNTERS
for every type of...
TEXTILE JOB
Send for descriptive literature
DURANT MANUFACTURING CO.
1931 N. Buffum St. Milwaukee 1, Wis.
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Model 5-H-7-1-R
END DRIVE ROTARY

CIRCLE 251 ON READER SERVICE CARD

GUARANTEED

to give drip-tight leak-proof seal

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For over 55 years the firm guarantee back of each and every DART UNION sold has been — *"if one should leak through we will give you two"!* The record reveals that less than 1 in every 100,000 has proven to be faulty. The extra wide bronze to bronze seats, precision ground to a true ball joint, mounted in heavy malleable iron pipe ends and protected by an extra heavy union nut, make a drip-tight, leak-proof connection WITHOUT EXCESSIVE WRENCHING time and time again.

Guarantee positive tight connections and extra long service on your pipe lines by using the DART GUARANTEED UNION.

Yours on request: Descriptive brochure on Dart Unions and Union Fittings.

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Equipment & Supply News

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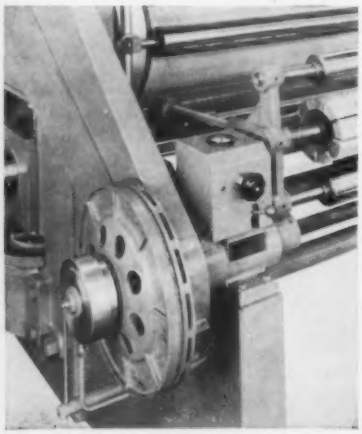
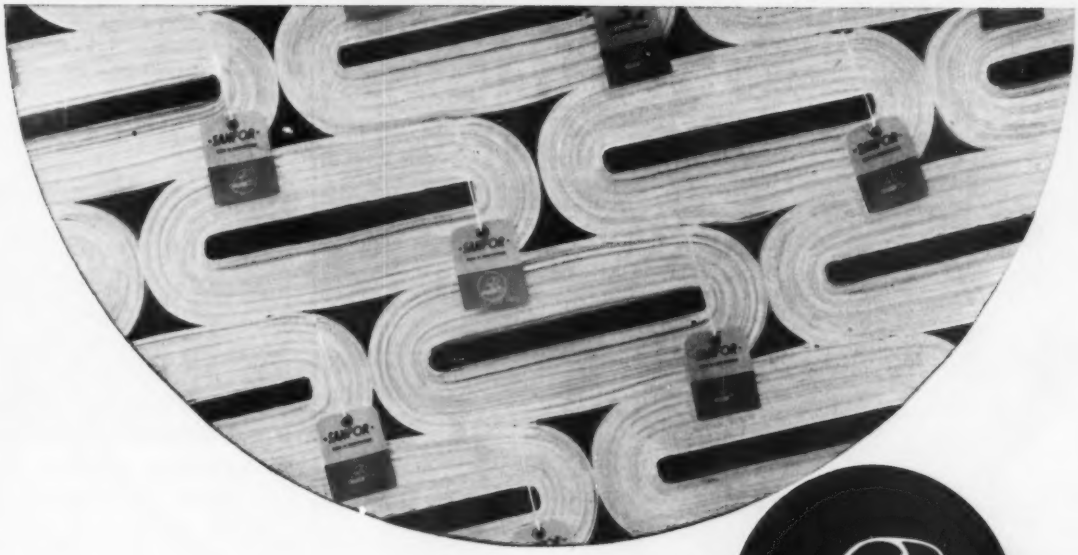
E-10—Light uses electronic control to make fabric patterns clearly visible to the operator on tenter frames or other high-speed open-width machines. Called Qualiflits, it flashes light on the fabric (length of flash depends on pattern size), so the operator can visually check for filling alignment. He then controls alignment with weft straighteners. It works at any fabric speed and on any type of fabric. Qualitex.



E-11—Air clutch replaces slip-belt rewinds on calenders, frames, can dryers, beamers, pads, etc. Features: clutch facing on a 15-in.-dia. driving disk, large-diameter hollow-core air cylinder, and antifriction bearings throughout. This compact unit comes with finger-tip controls for regulating tension and a fast acting on-off valve—all within one integral housing. John Verduin Machine Corp.

E-12—Scrubbing and polishing machine features double reduction, helical-cut steel gears, and tapered roller bearing for trouble-free service. It is available in 15- and 18-in.-dia. brushes. Attachments: scrubber, polisher, waxes, disk sander, steel wooler, buffer, and grinder. It can also be used to shampoo rugs. Housing is aluminum. Wheels retract automatically. Clark Floor Machine Co.

. . . Turn to page 144



OUR MACHINES HAVE PERFECTED OUR FABRICS

OUR FABRICS HAVE PERFECTED OUR MACHINES

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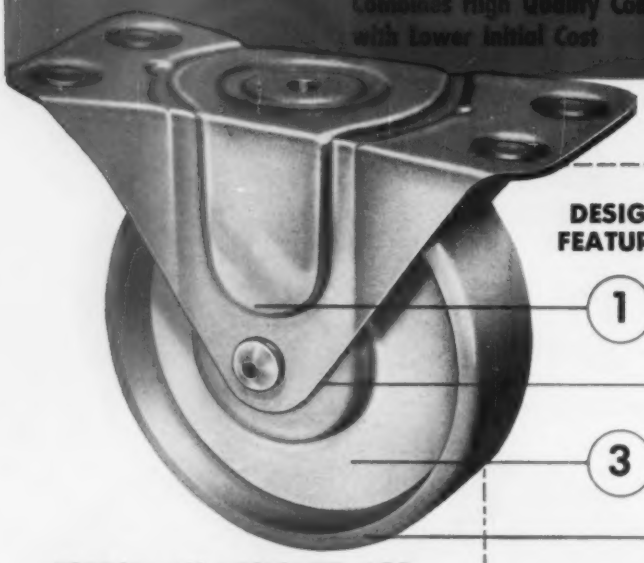
CIRCLE 143 ON READER SERVICE CARD 143

NØELTING
Faultless
Casters

New!
Faultless Textile Casters

500 SERIES • LIGHT DUTY
Combines High Quality Construction with Lower Initial Cost



DESIGN FEATURES

1 Drawn steel construction deeply corrugated to carry maximum rated loads with a substantial safety margin.

2 Ball bearing assembly in hub to absorb side thrust.

3 Deep drawn thread guards fit snugly between wheel hub and caster horn — assure maximum protection, trouble-free operation.

4 Semi-steel wheel has fully machined face with generous radii at tread edge.

ESPECIALLY DESIGNED FOR

- DOFF BOXES
- LAP TRUCKS
- ROVING TRUCKS

Here, in this new Faultless 500 Series Textile Caster all of the features textile men require—deep drawn thread guards and lower initial cost—are combined to give a rigid caster that assures freedom from snagged threads that stop production. Sealed wheel bearings available if desired. Load capacity 175 lbs.

Faultless castered equipment can lead the way to reduced costs and increased production in your own plant. Casters for light, medium, heavy and special duties are included in the extensive Faultless line.

ASK YOUR DISTRIBUTOR

Your nearby Faultless Industrial Distributor maintains a substantial inventory of Faultless Casters for immediate delivery. He and one of the strategically located Faultless Sales Engineers are available to work with you on every handling problem in your plant. Both are listed in the Yellow Pages of your phone book under "Casters," beneath the Faultless heading. Write for complete information.

Faultless Caster Corporation
Representatives in Atlanta, Baltimore, Boston, Buffalo, Chicago, Cleveland, Dallas, Detroit, Grand Rapids, Greenville, S. C., High Point, Indianapolis, Los Angeles, New Orleans, New York, Philadelphia, Portland, St. Louis, Washington, D.C., Canada: Stratford, Ontario

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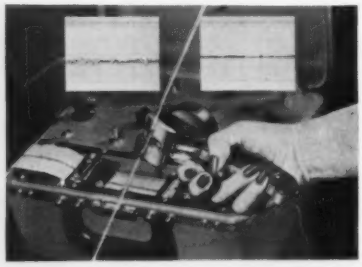


E-13—Tension recorder measures and records yarn tension during spinning, twisting, or other yarn processes. It gives continuous tension charts during the traverse, and shows long-time tension variation as yarn builds up on the bobbins. Tensitron, Inc.

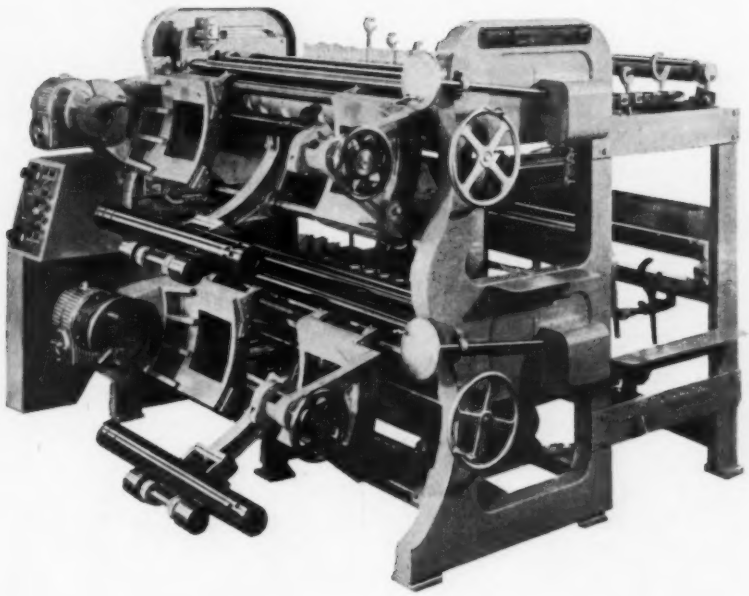
E-14—Turbo can, made of slatted aluminum, improves quality and eliminates the need for creels in a turbo operation. Stock goes from the turbo unit directly into shrinkage cabinets. It is round—and therefore can be used with a coiler Jenkins Metal Shops, Inc.

E-15 — Sewing machine, Model BB999, is a lightweight, portable unit producing a chain stitch at high speed for sewing fabric pieces together during processing. The machine has automatic retracting feedwheel pins for positive stripping. Birch Brothers, Inc.

. . . *Turn to page 146*

For Light Constructions

The Cocker Double Head Slasher



Produces 2 Loom Beams at One Time

Here are two superb slasher head units on one frame—each completely independent in operation and equipped with all the features which make Cocker Slashers the most efficient in the world.

Each Beam Has Its Own...

Incomparable GH & Torque Tube Drive*
Air Lift Calender Roll
Air Operated Compressor Roll
Individual Tension Control
Individual Comb and Comb Adjustment
Individually Adjustable Beam Carriage

This compact and economical double head slasher is available with a large variety of drives. If you slash light constructions it will pay you to get the facts on this two-in-one unit. Write today for full information.

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WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

QUALITY-RIGHT

FOR THE JOB!

Bond's quality Textile Leathers last three to five times longer than any comparable product because they're quality-right for the job. Bond draws on 75 years of experience to select the right leather, tan and cure it correctly, and manufacture it to optimum design and quality control standards for maximum job performance.

And Bond's quality pays off by eliminating wasteful stoppages and expensive loom downtime.

BOND TEXTILE LEATHERS
SINCE 1888

Including: BONDARON®—World's Best. The Leather With The Hair On. FLAT AND ROUND BELTING including waterproof flat leather belting. LEATHER LOOM SUNDRIES. • Jack • Lug • Bumper and Check Straps • Bumpers • Pickers • Friction • Filleting and Slab Leathers.

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Write for Bond's new catalog L 160.

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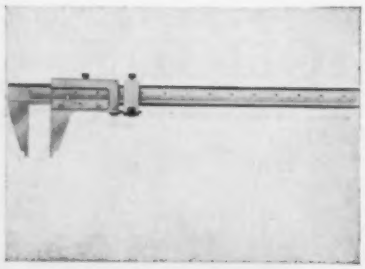
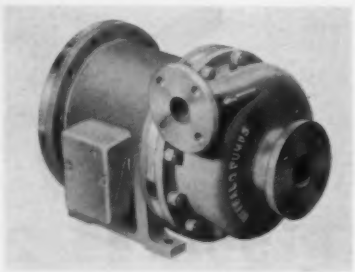


E-16—Vernier caliper measures to 1/1000 of an inch. The vernier scale is long for easy reading. Finish is luster chrome. Features: 2½-in. jaws—hardened, ground, and precision lapped. Inside readings on one side of scale, outside readings on the other. Scherr-Tumico, Inc.



E-17—Centrifugal pump is totally enclosed and hermetically sealed for use with toxic, inflammable, or volatile liquids. It features a long-life, self-adjusting, tapered-type bearing—with all seals and stuffing boxes eliminated. Thirteen sizes range from 1- to 5-in. discharge. It operates up to 120 psig. at 40 to 250 F. Thermoprotectors imbedded in the stator-rotor windings prevent motor burnout. Pumped fluid is circulated within the pump to dissipate motor heat—there is no cooling oil to change. Result: less maintenance. Buffalo Forge Co.

E-18—Gears, 20-degree pressure-angle type, run smoothly and quietly without lubrication. Types available: spur, bevel, miter sets, helical, and worm and gear sets. Material: high-carbon steel, alloy cast iron, and nickel bronze. Pitch range is 3 to 20. Morse Chain Co.

E-19—Skid truck uses an underload wheel design for full support and stability. Types available: (1) Speedy Zero with 1,100-lb. capacity, 2-in. mechanical lift, and 18x40-in. platform, (2) L Series with 2,400-lb. capacity and a 2-in. mechanical lift and hydraulic lowering, (3) H Series has 4,800-lb. capacity with a 2½-in. multistroke hydraulic lift and lowering. Stokvis Multiton Corp.

E-20—Automatic strapping machine, for Avistrap card strapping, comes in two models. Model AVM-1 takes packages from 6x6 to 20x20 inches in any length. Model AVM-2 takes boxes from 15x15 to 36x36 inches in any length. Both units handle ¼- to ¾-in. rayon strap. They use a ½-hp., 1200-rpm., 115-v., 60-cycle electric motor. The dispenser uses a ½ 1700-rpm. motor. American Viscose Corp.

E-21—Woolen card has special underground shafting to connect the main cylinders into one integral unit. The three-cylinder card has a 184-end tape condenser. Easy-to-remove covers protect the fancies. Workers use a drive mechanism that requires only one gear change to vary the speed. All high-speed pulleys have ball bearings. Main drive: 7- and 14-hp. motors. G. R. Coleman Import Co., Inc.

. . . *Turn to page 148*

"No more tight ends in our warps"

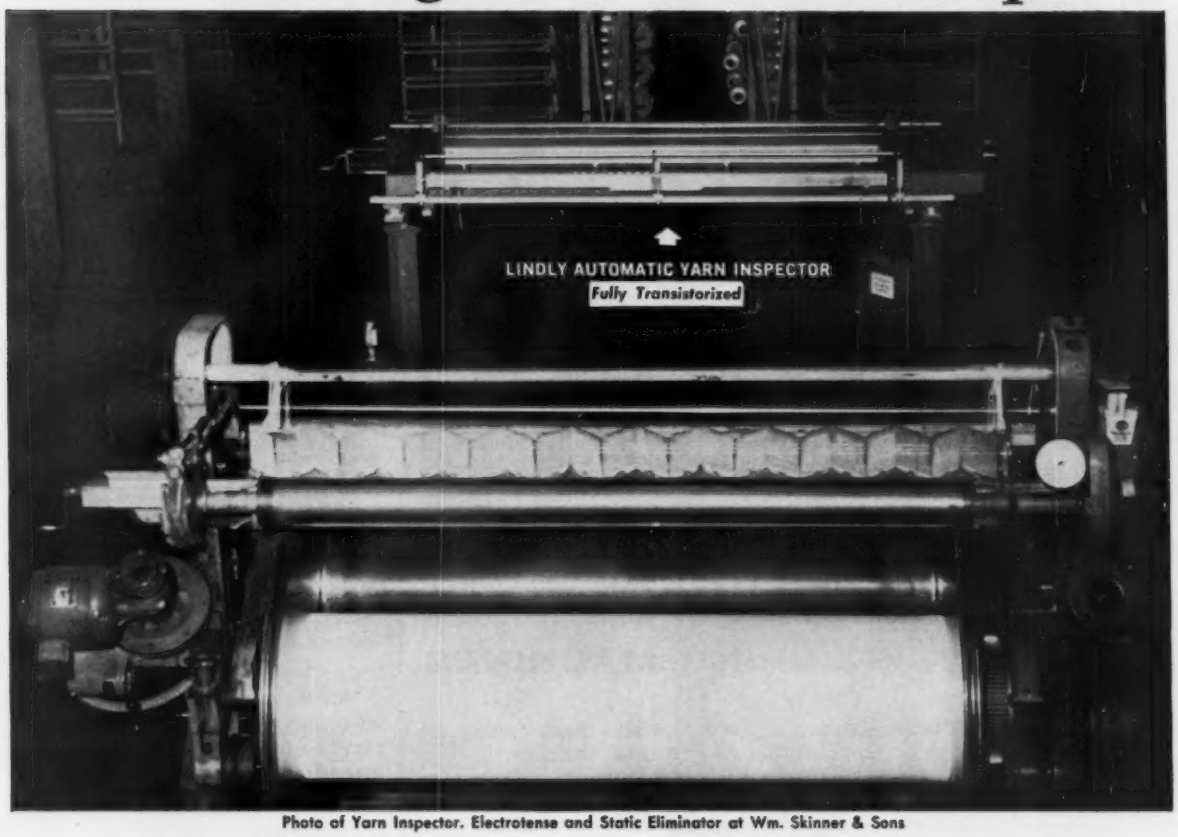
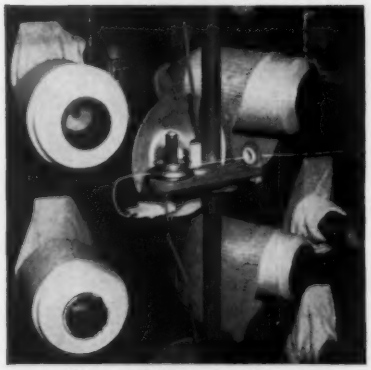


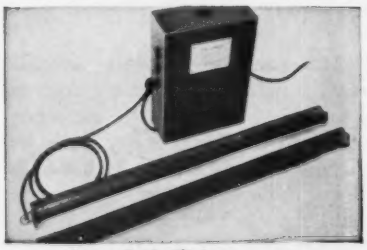
Photo of Yarn Inspector, Electrotense and Static Eliminator at Wm. Skinner & Sons

The LINDLY Electronic Triumvirate Gets the Credit

YARN INSPECTOR – ELECTROTENSE – STATIC ELIMINATOR



Closeup of Electrotense in creel.



Lance Static Eliminator — not visible in installation photo.

When we asked William Skinner & Sons, Holyoke, Mass. for a report on their installation of a Lindly Automatic Warp Yarn Inspector, the Lindy Electrotense in their creel and a Lindy Static Eliminator, their answer was prompt and enthusiastic: "No more tight ends in our warps."

However, when we asked them to go back temporarily to warping without the Lindly controls, so we could get some comparative "before" data, they flatly refused. "Why should we go through that again, when we don't have to?" they asked, and we can't blame them.

Since Skinner didn't need comparative data to prove the value of the Lindly Electronic Triumvirate, we doubt if you would either. So why not try an installation? Here's what the triumvirate is and does:

THE LINDLY AUTOMATIC YARN INSPECTOR is a high-speed, ultra sensitive photo-electric instrument for detecting yarn defects in warps, such as broken filaments, strip-backs and fluff balls. It can be made to operate a counter, a signalling device, or to actuate a machine stop switch — singly or in combination for any degree of imperfection.

THE LINDLY ELECTROTENSE for warp creels, winders, twisters, knitting machines, etc. provides completely uniform tension for any number of ends and the tension for all ends can be varied by turning only **one** dial. It consists of two conventional discs with an electromagnetic coil beneath. The lower disc is of non-magnetic brass, while the upper disc is of magnetic iron. When the coil is energized through a central electronic control, the upper disc is attracted downward, pressing the yarn between it and the lower disc in any degree desired. The pressure is pulsating, which prevents backup of twist and helps keep the tension discs clean and free turning.

LANCE STATIC ELIMINATOR, made in a variety of models, has a textile application wherever static electricity is a problem. It carries a high voltage discharge from pointed electrodes into the air, causing the fibre to be surrounded by ionized air, which serves to discharge the static electricity accumulated all around the surface of the fibre. Whereas the voltage is high enough to ionize effectively the air, it cannot harm the operator, who accidentally comes in contact with the electrodes.

FOSTER MACHINE COMPANY
ELECTRONIC SALES DIVISION, DEPARTMENT TW-9
Westfield, Massachusetts, U.S.A.
Southern Office, Johnston Bldg., Charlotte, N. C.

CIRCLE 147 ON READER SERVICE CARD

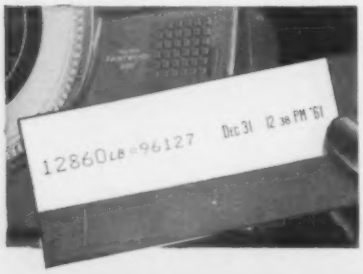
Why you should think of your scales as MONEY WEIGHING MACHINES

Cold, hard cash is the final value yardstick you must apply to every material or product that moves into, through, or out of your plant. How much does it cost? How much does it save? How much profit does it produce? In the last analysis, the answer always comes up in dollars and cents.

With dollars at stake, the *right* Toledo Scale at each weighing point is of the *utmost importance* . . . the backbone of control your needs demand. Your Toledo representative will take a personal interest in helping you get all the benefits provided by advanced Toledo methods and equipment. Write today. Toledo Scale, Division of Toledo Scale Corporation, Toledo 12, Ohio. *(Toledo Scale Company of Canada, Ltd., Windsor, Ontario.)*

TOLEDO PRINTWEIGH® "400"

provides complete printed weight records



Prints where you wish on full 8½" x 11" forms, or on tickets or strips. Prints full figures, even when unit weights are used. Positive weight identification, with selective numbering, weight symbols, or consecutive numbering. Also prints time and date, if required. Weight data may be transmitted electrically to remote adding or other office machines. Ask for Bulletin 2017.

SERVICE Factory-Trained 260 Cities

TOLEDO®

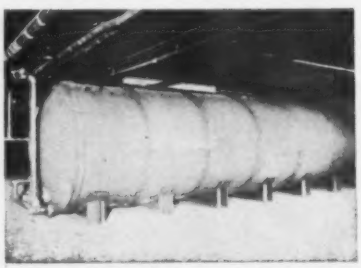
Headquarters for Weighing Systems

Equipment & Supply News

. . . Begins on page 137

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

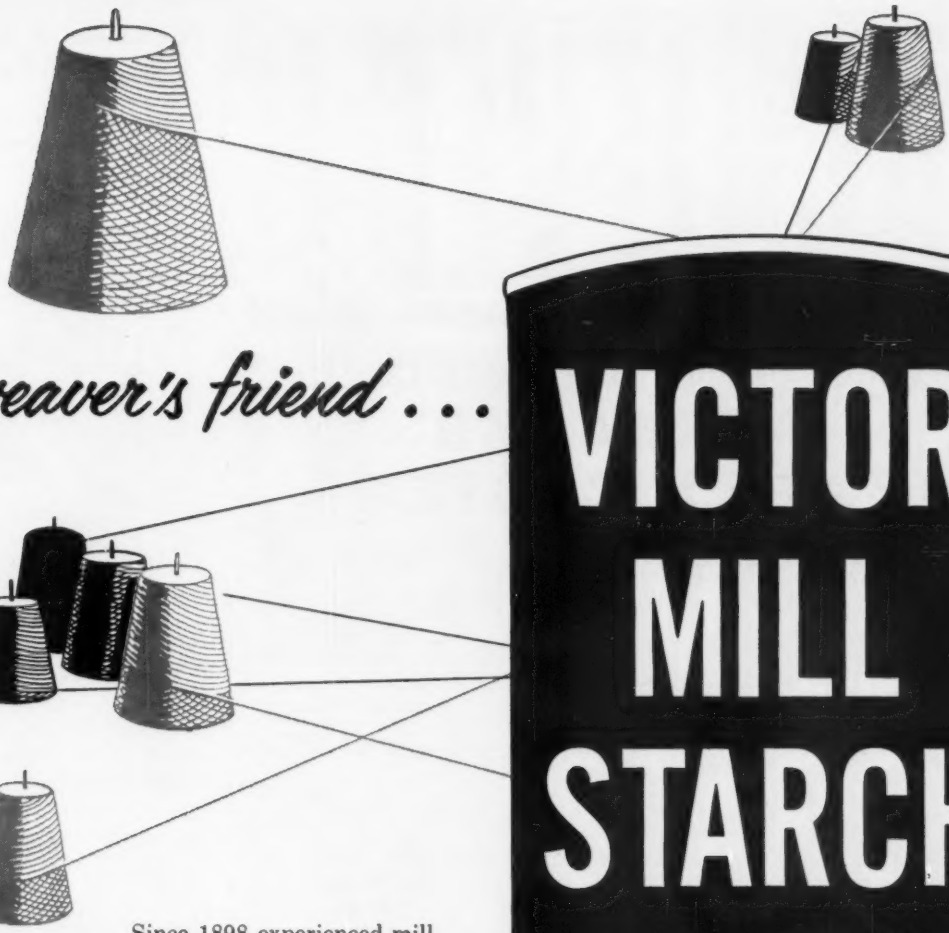
E-22—Potentiometer makes on-the-spot temperature measurements for instrument maintenance and testing. Dial indicates degrees in Fahrenheit in any of 15 ranges. Accuracy: ±0.3% of range. It is 7x5x5 inches and weighs 4½ pounds. Leeds & Northrup Co.



E-23—Plastic tank, for bulk storage of corrosive liquids, holds 6,500 gallons. It is translucent, showing the liquid level at all times. Tank eliminates sweating, resists corrosion, reduces maintenance to a minimum, and eliminates painting. Jones & Hunt, Inc.

E-24—Automatic button stitcher sews a button on a man's coat in 6 seconds. It securely and uniformly puts on over 1,000 a day, twice as many as could be done by hand. It works on 2- or 4-hole buttons with parallel or cross-stitching. American Machine & Foundry Co.

. . . Turn to page 150



the weaver's friend . . .

Since 1898 experienced mill men have relied on the uniformity of Victor Mill Starch. They know that year after year Victor can be depended upon for better penetration, stronger warps, greater smoothness.

They have also learned to rely on Keever technicians. When mill problems come up, they know that Keever has the experience and facilities to solve them. Let them prove it to you.

KNOWN FOR UNIFORMITY FOR MORE THAN 60 YEARS

TEXTILE SALES DIVISION
118 South Pleasantburg Drive
Greenville, South Carolina

THE KEEVER STARCH COMPANY

GENERAL OFFICES COLUMBUS 15, OHIO

CIRCLE 149 ON READER SERVICE CARD 149

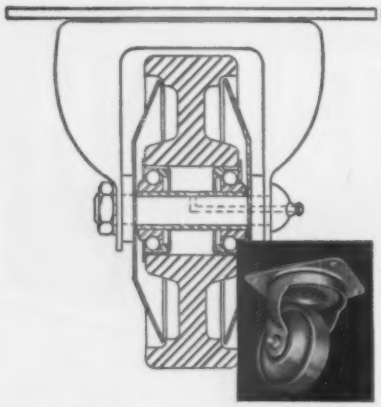
ACHIEVED!

Textile Casters That Won't Bind!

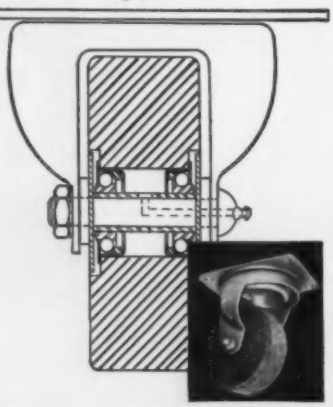
FAIRBANKS TEXTILE CASTERS

Never Before Such Sure-Fire Protection Against Threads And Lint!

Available In 2 Wheel Types:



Precision cast, ballbearing semi-steel wheel—perfect concentricity; smooth, thick tread and big tread edge radius — protects floors and rolls and swivels easier. Threadguard protects in two directions: vertically, by tight fit to concentric inner edge of wheel tread; horizontally, by tight fit to molded step on web of wheel. Spacer washer, between threadguard and caster leg, eliminates V trap—allows lint and thread to fall free or, if caught, cleaning out without removing wheel. Available in 4 and 5 inch sizes.



"LAMILON", All-Plastic, ballbearing wheel permits standardization on one wheel for any section of the plant. Protects wood and concrete floors, resists sticking of ring travelers and gives excellent service in bleacheries and dye houses. Tight flush-face threadguard has very close fit in machined recess in wheel. Flush-face design decreases chance of falling lint and thread catching in wheel. Spacer washer, between threadguard and caster leg, eliminates V trap—allows lint and thread to fall free or, if caught, cleaning out without removing wheel. Available in 4 and 5 sizes.

Fairbanks patented "LOCKWELD" Steel Swivel Casters have eliminated the king-pin — major cause of swivel caster failures — providing stronger, easier swiveling, longer lasting casters. Available in single ball race, regular duty, sizes 2 to 6 inch; double ball race, medium-heavy duty, sizes 3 to 8 inch, with matching rigid casters.

Sold through leading distributors in All Principal Cities

THE **Fairbanks** COMPANY

Executive Office: 393 Lafayette Street, New York 3, New York

Valves • Dart Unions • Casters • Trucks • Wheels

520 Atlantic Ave. Boston 10, Mass. | 2600 S. Throop St. Chicago 8, Ill. | 393 Lafayette St. New York 3, N.Y. | 15 Stanwix St. Pittsburgh 22, Pa. | 202 Division St. Rome, Ga.

Factories — Binghamton, N.Y. and Rome, Ga.

Equipment & Supply News

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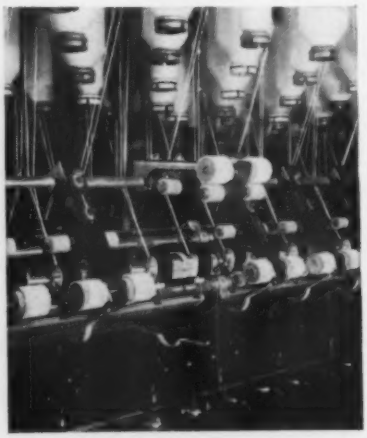
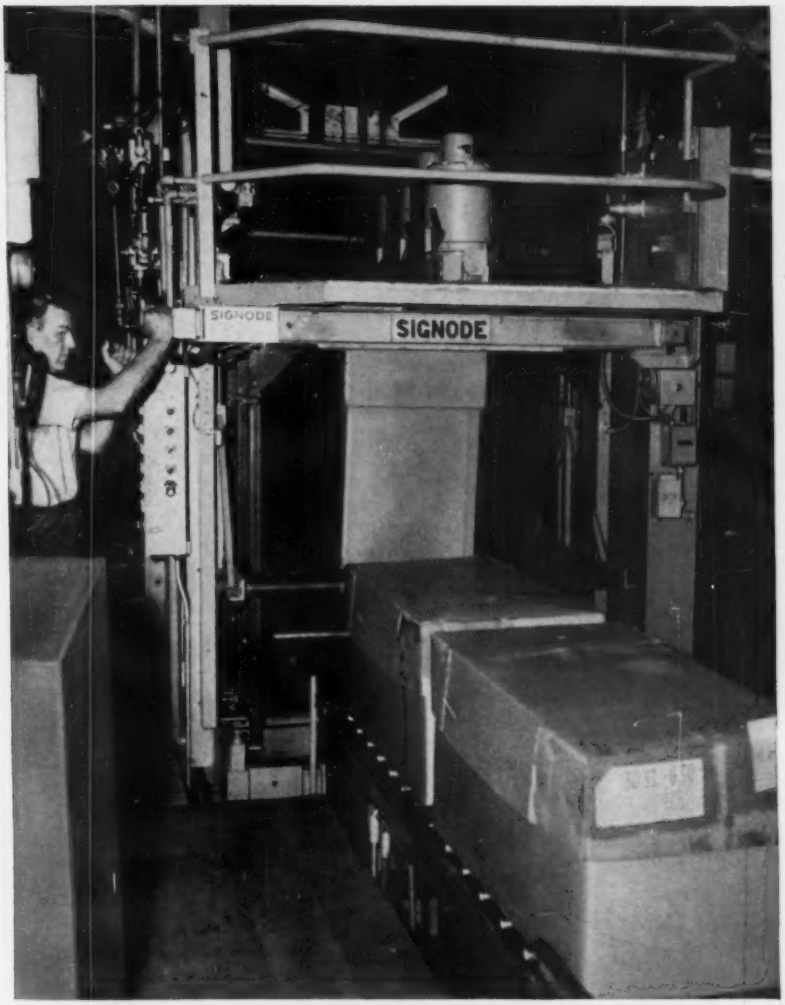
For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-25—Air pump, for use in vacuum, pressure, or gas boosting, gives vacuum to 26-in. Hg., pressure to 13 psig., and volumes 12 to 54 cfm. It features antifriction bearings, rotary shaft seals, inlet filter, and automatic oiler. Leiman Brothers, Inc.



E-26—Spinning-frame change-over, SG-3D, converts the Gwaltney spinning frame to a double-apron system. It's easy to install because the angle of the roll stand remains at 60 degrees, and it uses the original Gwaltney top-arm weighting. This reduces the number of parts needed. Advantages: gives better control in draft zone, makes a better yarn, and works at high drafts with cotton or blends. Saco-Lowell Shops.

. . . Turn to page 152



One man weighs, marks and straps a volume flow of textile cartons

with a Signode Texomatic CSM

With a Signode Texomatic compression strapping machine, this operator weighs, marks and straps a mixed flow of cartons as they move from the textile production line. At the push of a button, the Texomatic CSM automatically lifts to compress the load, then feeds, tensions, seals and severs one, two, or three straps simultaneously in about 12 seconds. This gives the operator sufficient time to weigh and mark the cartons without interrupting their flow, and permits maximum savings in time, effort, and attention.

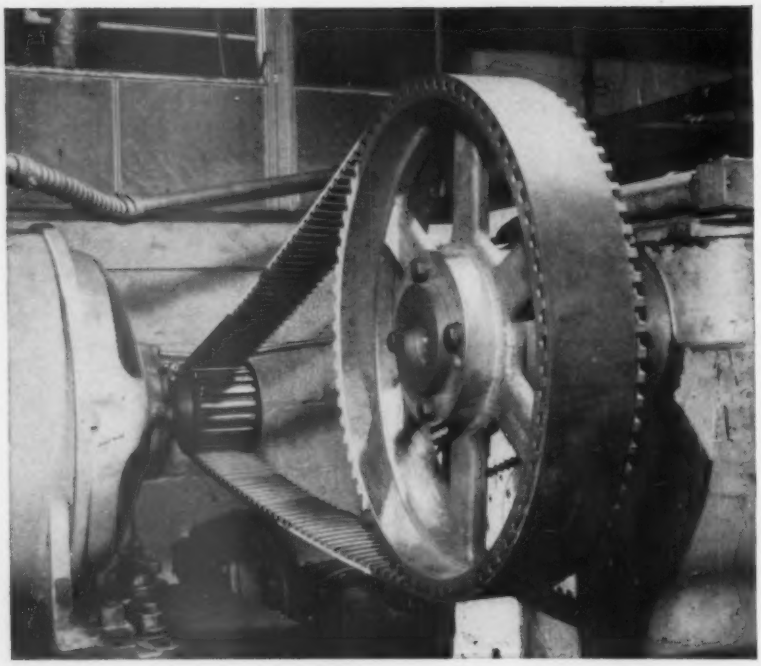
The new Texomatic is powered by three superbly-engineered M-20 heads with the known ability to operate continuously without attention through a million cycles or more. The M-20 strapping units are simply designed, easily accessible, and powerful enough to prevent overloading at fast speeds and high tensions. The sturdy, rugged, rack and pinion gear assembly gives positive action in raising and lowering; construction of the Texomatic is greatly simplified through the "lift to compress" action.

Let an experienced Signode man help you select the Texomatic compression strapping machine that meets your particular requirements. Write:

First in steel strapping

SIGNODE
STEEL STRAPPING CO.
2642 N. Western Avenue • Chicago 47, Illinois
Offices Coast to Coast, Foreign Subsidiaries and Distributors World-Wide
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

CIRCLE 151 ON READER SERVICE CARD 151



Here's how WOOD'S helps you with

PROBLEM-SOLVING, POSITIVE ACTION

Wood's has the drive, the positive action Timing Belt Drive . . . PLUS THE EXPERIENCE it takes to give positive, workable solutions to your power transmission problems. Wood's Timing Belt Drives provide instantaneous, slip-free response . . . *full* power transmission. They require no lubrication, no motor bases, no tensioning devices. Belt matching is eliminated. And, their speed range is exceptional . . . from 0 to 16,000 fpm. Load capacities range up to 600 hp and above. Belts are unusually strong, but they are thin and flex readily, eliminating heat build-up, maintaining high operating efficiency. When you want positive action, investigate Wood's Timing Belt Drives. You'll find outstanding solutions to a wide variety of drive problems.

Five, easily understood charts, developed by Wood's, permit proper drive design with almost no calculations. Write for Bulletin 21103.

Wood's

T. B. WOOD'S SONS COMPANY

CHAMBERSBURG, PENNSYLVANIA

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TD/2361

Equipment & Supply News

. . . *Begins on page 137*

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-27—Storage racks are used for drive-in and drive-through high density storage. When you are not using the storage aisles for pallets, you can drive through with the lift truck. There are no crossbars—the pallets sit on 3-in. support arms. Prefabricated parts work in any custom installation. Vertical frames are 3-in.-sq. columns with 1½-in.-sq. diagonal-tie members. Rail-support arms and 3-in.-sq. support rails hold the pallets. Other parts: ceiling supports and cross-bracing. Support arms adjust in 2-in. increments. Acme Steel Co.

E-28—Differential regulator keeps a constant pressure differential between liquid and any medium loaded on top of diaphragm. Valves are suitable for 250 psi. at 450 F. or 300 psi. at 150 F. Features self-cleaning, self-lapping, stainless-steel gate. OPW-Jordan Corp.

E-29—Sewage-treatment plant uses the Biofiltration process that permits safe disposal of effluents in a nearby water course. Standard types, based on 24-hr. runoff, range from 10,000 to 180,000 gallons per day. Factory-fabricated tank is made of steel. Simplified piping reduces installation cost. Operating cost is also low—power required is 1.75 kw. for a 60,000-gal. unit. Dorr-Oliver, Inc.

. . . *Turn to page 154*

SANT'ANDREA NOVARA

Novara—Italy

Manufacturer and Exporter all over the world of textile machinery for combing, preparing, spinning and twisting of wool and artificial and synthetic fibres.

New Rectilinear Combing Machine Model PS for wool, synthetics and blends, working width 18 inches, high speed operation due to entirely new compensating motion, great productive capacity and great versatility.

The SANT'ANDREA NOVARA Model PS Comb incorporates many highly advanced patented devices in its construction which make it one of the most important developments in the field of the combing of fibres realized in recent times.

Working speed: with the burr-knife : 160 nips/1'
without the burr-knife : 175 nips/1'

Production: 100% increase over conventional rectilinear combs

More than 100 machines in use or on order in the United States alone.

Representatives for the United States and Canada:

ERNEST L. FRANKL ASSOCIATES INC.
515 MADISON AVENUE
NEW YORK 22, N. Y. — U. S. A.

CIRCLE 153 ON READER SERVICE CARD 153

NEW D & F Model "H" (Lower and Narrower) SPINNING FRAME

. . . lets you choose your own frame specifications for:

Controlled, improved spinning

Better yarn quality

Higher production output

Lower unit costs

DAVIS & FURBER

lets you choose the features you need. There are 51 in all. 30 are entirely new.

- ☐ Increased package size
- ☐ Reduced floor space (15% approx.)
- ☐ Variable speed drive
- ☐ Automatic needle injection-type spinning rings
- ☐ Ballooning rings
- ☐ Ring size up to 6"
- ☐ Gauge size up to 7½"

Check the items of interest. Tear out advertisement and mail to us at once. Call us, or simply get in touch with your own Davis & Furber man. Send for new Model H Spinning Frame folder. Find out what "COORDINATED PRODUCTION" can mean to you.

DAVIS & FURBER
MACHINE COMPANY

TEXTILE MACHINERY DESIGNERS AND MANUFACTURERS
North Andover, Mass.
Charlotte, North Carolina

AD 15-E

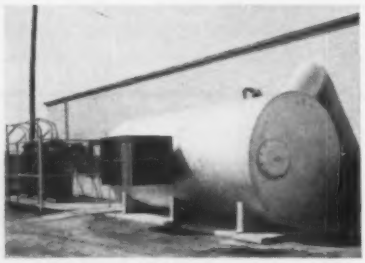
Member — American Textile Machinery Association

CARDS • SPINNING FRAMES • PREPARATORY MACHINERY • WARP DRESSING MACHINERY • FINISHING MACHINERY
MACHINERY MODERNIZATION • ACCESSORIES, SUPPLIES, CARD & NAPPER CLOTHING, GARNET WIRE, TAPES & APRONS
SPARE PARTS • TECHNICAL SERVICE & CONSULTATION

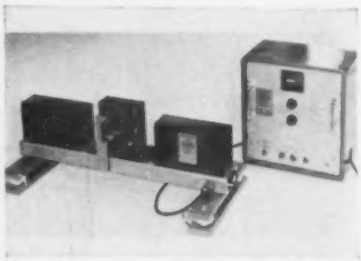
Equipment & Supply News

. . . *Begins on page* 137

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.



E-30—Air system increases compressor volume by 45%. It forces chilled, dried, cleaned air into compressor intake. Features: increased air volume, no oil-water sludge, increased compressor output, and reduced horsepower per 100 cfm. System works on any compressed air or gas in single or multistage compressors from 350 cfm. up. Result: increased volume at the same horsepower. Lynch Corp.



E-31—Two-dimensional viewer inspects yarn from both sides. It's an accessory for the Lindly Thread & Line Inspector that counts or works a stop motion. Operating speed is over 400 ypm. With the inspector, reject analysis simulates visual inspection. Foster Machine Co.

E-32 — Weft straightener, called Weftomic, integrates both electromechanical and optical detection methods. It handles all types of fabrics and blends. The optical control works on delicate fabrics and sheers where light can pass through the fabric. The electromechanical control takes over on all other fabrics, including weaves such as sand crepe. It has four sensing wheels. Mt. Hope Machine Co.

. . . *Turn to page* 156

What you should know about STARCH*

YOU PROBABLY KNOW—BUT OTHERS MAY NOT

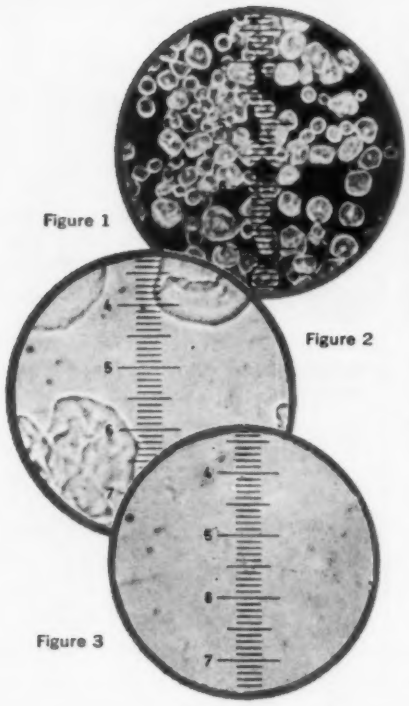


Figure 1

Figure 2

Figure 3

All photomicrographs taken at 382.5X Magnification

What is "Cooked" Starch?

Starch in a size formulation is present for its film-forming properties. Maximum use of this property depends upon completely gelatinizing the starch—cooking it. Completely gelatinized starch is prepared from granular starch which is in slurry, as in Figure 1. It is then heated sufficiently so that the granules pass through a stage of swelling, as in Figure 2. Finally, and most important, the cook reaches the stage where these swollen granules disrupt and form a homogeneous dispersion, as in Figure 3. At this point, the starch has reached its optimum physical condition for formation of continuous, flexible, strong films.

These photomicrographs, taken under conditions of phase microscopy in the new Hubinger microscopy lab, illustrate very graphically why an incompletely "cooked" starch is not capable of forming a completely continuous film. The presence of large amounts of the swollen sacs throughout the film can easily be seen to weaken the film and result in shedding and poor weavability.

Thoroughness of gelatinization is affected strongly by such variables as cooking time and temperature, types and amounts of softeners, compounds, etc., concentration of starch, and gelatinization temperature, viscosity, pH and type of starch used.

Call the Man from Hubinger

Some of the industry's leading technical experts are on Hubinger's staff. Let them show you the way to better products—and plant savings, too.

IRA L. GRIFFIN & SONS, INC.
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Phone: FRanklin 6-5583

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OTHER OFFICES IN NEW YORK, BOSTON, CHICAGO AND LOS ANGELES

* *One of a series of articles. Write for the complete set and for our continuing technical data service, without obligation, to:*

TEXTILE DIVISION

THE HUBINGER COMPANY

KEOKUK, IOWA

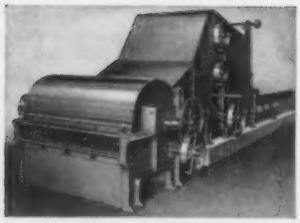
CIRCLE 155 ON READER SERVICE CARD

Since 1852

FIBRE PROCESSING MACHINERY by SARGENT

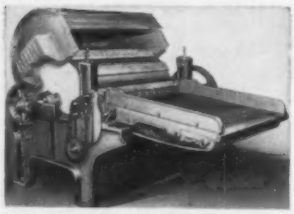
From Bale Opener through Dryer, Sargent's modern fibre processing system gives you completely automatic continuous production . . . an uninterrupted straight-line flow of quality-protected fibres at an economy you cannot afford to overlook. Let us tell you more.

FEEDERS • OPENERS • PICKERS • BLENDERS
WASHERS • DRYERS • TOP & YARN HANDLING
AND SPECIAL PURPOSE MACHINERY

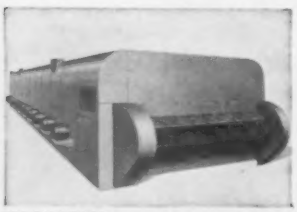


BALE OPENER AND PICKER
Continuous opening, picking and feeding, cotton linters or staple. Excellent on machine-picked cotton.

SQUIRREL CAGE DUSTER
Continuous dusting of heavy grease wools, waste, rags. Also very efficient blender.



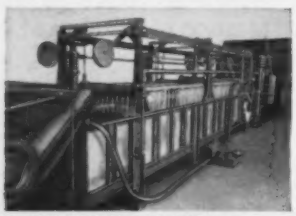
WET AND DRY PICKER
Highly versatile—for fibres after bleaching, after dyeing. Works equally well with wet or dry fibres.



STOCK DRYER
Leads all dryers for performance and dependability on scoured or dyed wools, cotton, synthetics.

MIXING PICKER
For continuous blending—all fibres.

FIBRE PROCESSING SYSTEM
Section of recent installation showing high economy, complete dependability. Fibres are not handled from opening to drying.



STAINLESS STEEL WASHER
For scouring, bleaching, acidifying.

C. G. SARGENT'S SONS CORPORATION
Graniteville, SINCE 1852 Massachusetts

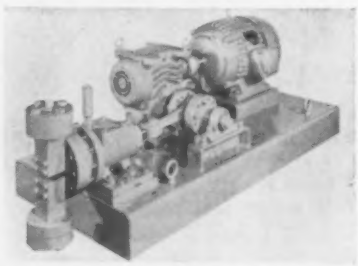
PHILADELPHIA • CINCINNATI • ATLANTA • CHARLOTTE • HOUSTON • CHICAGO • DETROIT • TORONTO

Equipment & Supply News

. . . *Begins on page 137*

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

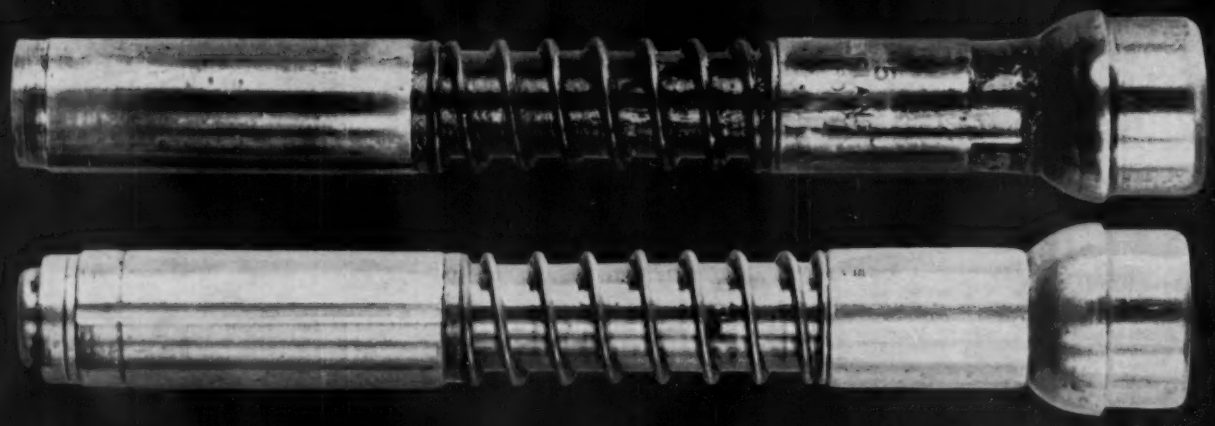
E-33 — Hand-lift truck handles either single- or double-faced pallets. It comes in three fork lengths —36, 40, and 48 inches—and two widths—21 and 27 inches. It steers through 190 degrees for handling in tight places. Construction: welded formed-steel. Revolvator.



E-34—Chemical pump handles corrosive slurries at pressures up to 3,000 psi. All parts contacted by the liquid are Teflon or inert metals. Features: prelubricated bearings, adjustable strike, and positive metering. Capacity 1½ to 6 gpm. Keystone Engineering Co.

E-35 — Gate valve has inside-screwed or socket ends for fast installation in limited space. Types: bolted bonnet in 1½ to 2 inches, union bonnet in ¼ to 1 inch. Rated for 2,000 pounds at 100 F. Disks and seat rings are 13 chrome stainless steel. Lukenheimer Co.

. . . *Turn to page 158*



You can see the difference that Vexilla D makes. Both roller bearing inserts operated *5,000* hours at 9,000 rpm. *Top:* Bearing lubricated by competitive oil. Note heavy lacquer deposits. *Bottom:* Bearing lubricated by Vexilla D.

BULLETIN:

Shell develops a spindle oil that scours out of fibers, cuts misting loss, helps save yarn and money

Leading mills compared Shell's new Vexilla® Oil D with competitive spindle oils. In a typical test, Vexilla D and another oil were run on identical frames for 5,000 hours at 9,000 rpm.

With Vexilla D there was no corrosion, no deposits to cause spindle wobble or excessive ends down.

Shell's new oil is designed to protect yarn. It scours out of practically all fibers—synthetics included. Read how this new sludge-fighting Shell oil may save money on your frames.

New Shell Vexilla Oil D was developed to solve two major spinning problems:

1. To keep contaminants from sticking to spindle blades or settling in bolster cases—a common cause of spindle wobble.

2. To prevent excessive power consumption due to increased oil viscosity.

Cleaner spindle parts

New Shell Vexilla D is a *dispersant* oil. This simply means that Vexilla D keeps little bits of sludge (oxidized oil) and lacquer from "growing" and adhering to sensitive spindle parts.

In six months or less you start seeing the results of Vexilla D's dispersancy. Spindle blades are bright and clean—free from sludge and lacquer deposits.

There is less spindle wobble, less spindle drag. Fewer ends down. Less maintenance.

Resists foaming, misting

Vexilla D is specially formulated by Shell to resist foaming. It contains powerful additives to help prevent foaming and misting—even at maximum speeds. Oil stays in the bolster where it belongs.

But Shell didn't stop there. A special cleansing agent was also added to Vexilla D.

No longer need good yarn be ruined by oil thrown up by spindles. Vexilla D does not stain yarn. It scours out. Mill experience proves it.

Check your Shell Industrial Products representative for complete facts on new Vexilla Oil D. Or write: Shell Oil Company, 50 West 50th Street, New York 20, N. Y.

SHELL®

A BULLETIN FROM SHELL
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CIRCLE 157 ON READER SERVICE CARD

Why Wrinkle Your Brow Over Wrinkles in Cloth?

get

MECHO AIR GUIDER

Streamlined, it is precision-engineered, and accurate to within one-eighth of an inch. It ranges from 1 to 400 ypm.

Mecho's selvage finger is highly sensitive, yet very strong. It will prevent double edges turning on cloth. Mecho's adjustment lever changes the selvage finger tension (to accommodate any cloth from the lightest to heavy #8 duck) . . . *while in operation!*

Everyone engaged in wet processing needs a cloth guider, so make yours Mecho and forget your troubles.

Mecho Air Guiders can do your job; they guarantee you "Miles of Cloth without a Wrinkle." They've been standard equipment in hundreds of finishing plants for a quarter of a century! Their efficient and reliable simplicity makes them simply great! Why wait?

Write today for this helpful FREE Mecho Air Guider Catalog.

THE Guider SPECIALTY COMPANY

372 State Street, North Haven, Connecticut

Southern Representatives:

McSpadden, Scantland & Hunter, P. O. Box 3635, Charlotte 3, N. C.

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Do you need more information on a product or service advertised?

USE READER-SERVICE CARD FOR PROMPT REPLY.

Equipment & Supply News

. . . *Begins on page 137*

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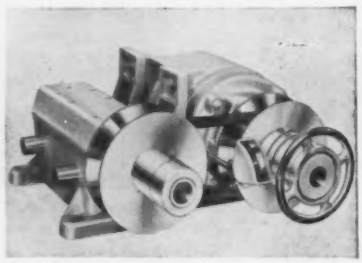


E-36—Variable-speed drive works with 3-, 5-, 7½-, or 10-hp. motors. It has an 8- to 1-range of speed variations, with manual or automatic regulators for changing speed. It may be floor, wall, or ceiling mounted with horizontal or vertical shafts. Lewellen Mfg. Co.

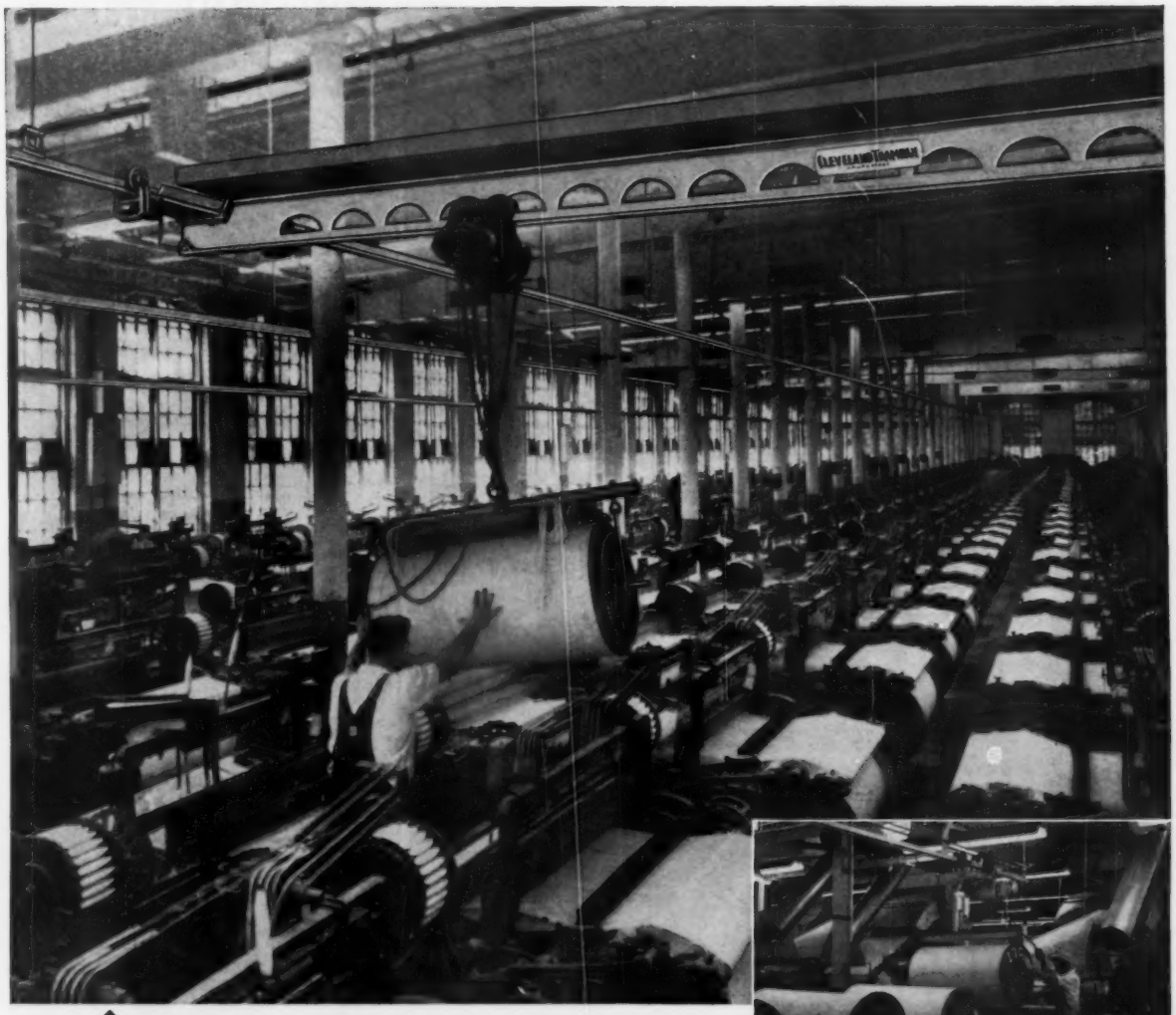
E-37—Floor-sweeping compound absorbs dust and deodorizes at the same time. It has a 100% oil base. Because it contains no water, kerosene, or refuse oil, it can't dry out, freeze, or spoil. Product comes in metal or fiber drums and can be stored indefinitely. Paxson Mfg. Co.

E-38—Water-level safety switch prevents pump damage caused by insufficient liquid or loss of prime. It mounts on the pump discharge line and connects in series with the pump-motor power source. It senses liquid flow by discharge pressure. And it works on systems where bearings, packing glands, and motor windings depend on pumped water for lubrication and cooling. United States Gauge Div.

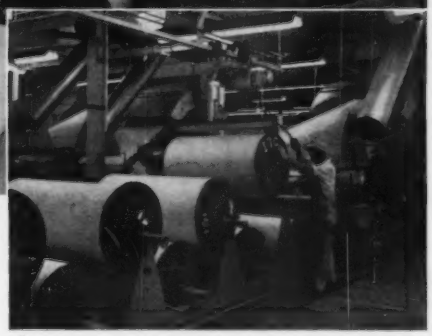
. . . *Turn to page 160*

Simple Overhead Tramrail Equipment

SPEEDS HANDLING of Heavy Textile Beams



Although the trend is toward larger diameter beams, there is no problem handling them in a weave room equipped with Cleveland Tramrail cranes. Hand-propelled cranes, as illustrated, roll easily with a very light push.



A Cleveland Tramrail overhead track with hand-propelled carrier and electric hoist make quick work of placing heavy beams into slasher creels. With the push-button-operated hoist, the worker can inch a beam carefully into place.

Simple low-cost Cleveland Tramrail cranes are a tremendous asset to a weave room. They carry heavy loom beams quickly and easily. The aisleways need be no wider than required for a man to walk. Cranes permit increasing beam diameters without widening alleys.

Overhead Tramrail equipment cannot be excelled for handling beams at slashers, warpers, twisters, dyeing machines, etc. Time is saved. Floor wear minimized. Beam damage reduced. Safety improved.

Hundreds of textile mills are profiting with dependable Cleveland Tramrail equipment. Our nearby sales engineers will be glad to work with you on your handling problems.

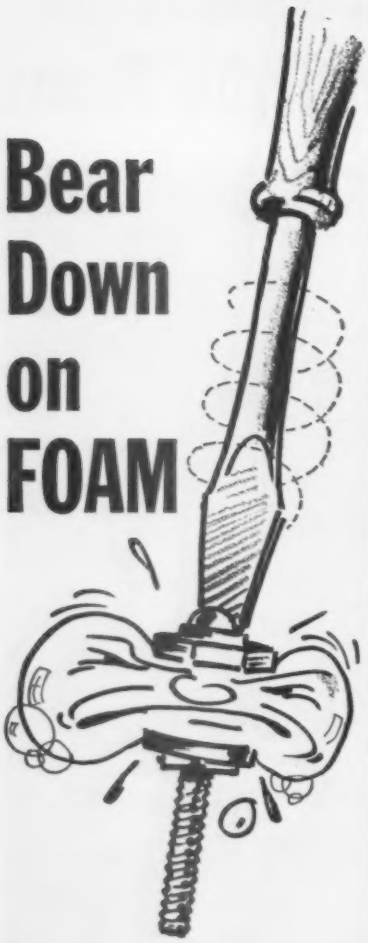
Write for free Engineering and Application Booklet No. 2008. Packed with valuable information.

CLEVELAND TRAMRAIL

Overhead Materials Handling Equipment

CLEVELAND TRAMRAIL DIVISION • THE CLEVELAND CRANE & ENGINEERING CO. • 8484 E. 287 ST. • WICKLIFFE, OHIO

Bear Down on FOAM



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There's a *right* tool for every job. In foam control it's Dow Corning silicone antifoamers or defoamers . . . job-proved thousands of times over as the most efficient, most economical, and most versatile foam suppressors available.

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Equipment & Supply News

. . . *Begins on page 137*

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-39—Strapping machine eliminates the problem of changing a production line unit because of a product change. It is designed for on-the-spot adaption to future requirements. It handles flat strapping from ⅜x0.015 to ¾x0.023 inch and any size oval strapping. An electric motor feeds the strapping through a chute around the container to the exact length required. Then the strap is pneumatically tensioned, sealed, and cut by a super-speed unit in less than one second. One operator handles the unit. A. J. Gerrard & Co.

E-40—Card flat chain improves accuracy and smoothness of operation. Shaved link holes eliminate burrs and nicks. Results of chain: eliminates stiffness or play in joints, makes card flat attachment easier, puts full bearing contact between bushing and links without friction, and prevents grooving normally caused by burrs. This cadmium-plated chain resists moisture and corrosion. Fort & Co.

E-41—Caster wheel comes with a long-wearing, high-load capacity tread called Adiprene. It doesn't mark floors and it's unaffected by chemicals, oils, acids, alkalis, or weathering. Wheel diameter: 3½ to 8 inches in swivel or rigid type. Rapids-Standard Co., Inc.

. . . *Turn to page 162*

The great NATURAL dye

FOR MAXIMUM PENETRATION . . .
RIGID QUALITY STANDARDS . . .
SPECIFY:

JAMAICAN LOGWOOD BLACK

Preferred by the experts

. . . the best **BLACK**
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. . . the clean **BLACK**
. . . the uniform **BLACK**
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. . . the fast **BLACK**
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. . . use Hematine from Jamaica.

Available in powder, crystal, or liquid.
Write for detailed information.

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The West Indies Chemical Works, Ltd.

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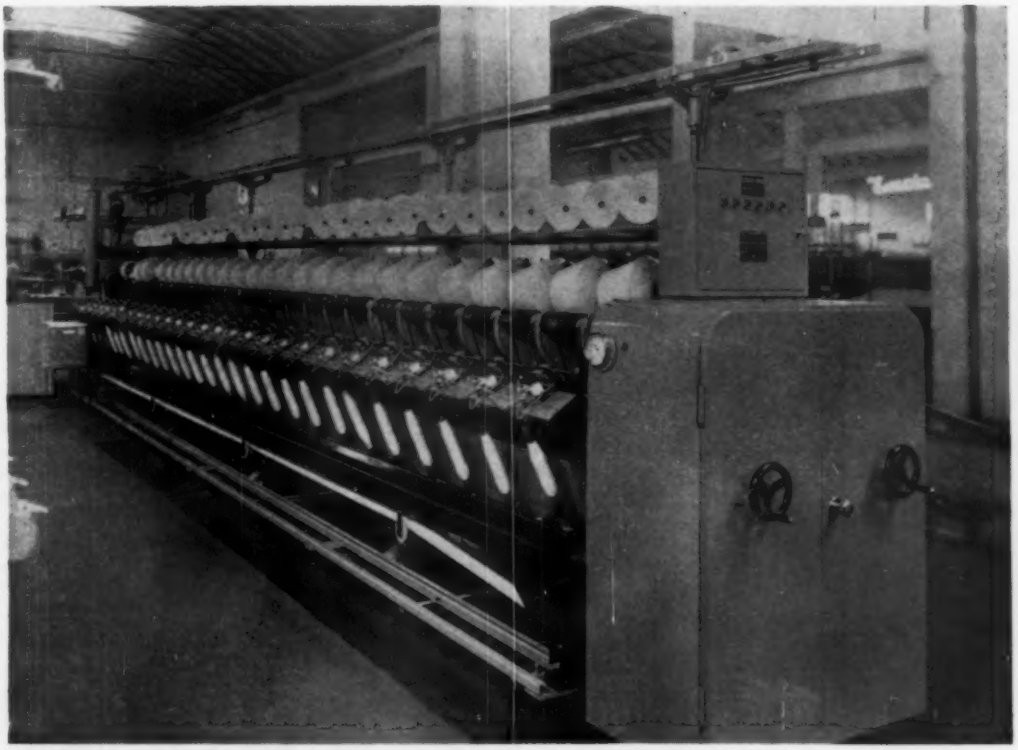
Soft package winder for dyeing purposes
Hank-to-supercone winders
Cheese winders Doubling winders
High precision sewing thread winders
Special winders for other purposes

FOR ALL NATURAL and SYNTHETIC YARNS



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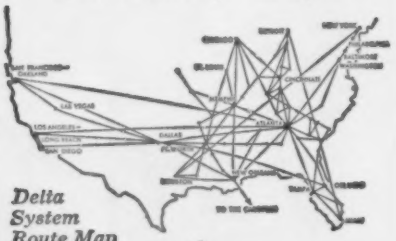


Delta System Route Map

DELTA

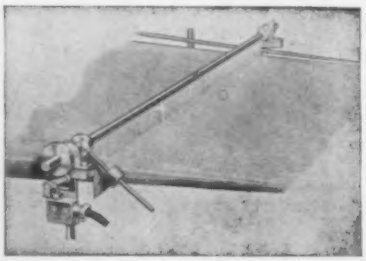
the air line with the BIG JETS

Equipment & Supply News

. . . *Begins on page 137*

For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-42—Roll wrapper cuts wrapping time to 15 seconds per fabric roll. It handles varying diameter rolls of consistent width. The operator selects the paper length by setting a time dial that activates the unit. It then dispenses the correct paper length, applies glue, cuts the paper, and completes the wrap automatically. The compact unit takes a minimum of floor space. Dyken Mfg. Co.



E-43 — Slasher control prevents slasher breakouts caused by tangled or matted yarn. It's comb mounted on top of the yarn sheet. Yarn passes through this comb and any tangles or snarls cause the comb to pivot forward. The pivoting operates a switch that automatically changes the slasher to slow speed. A counterbalance on the comb offsets normal yarn friction. Steel Heddle Mfg. Co.

E-44—High-speed mixer for small batch or laboratory work is an air-driven portable unit. It also works on inflammable materials that need mixing, emulsifying, dispersing, or homogenizing. Sizes available to handle 3- to 25-gal. batches. Barrington Industries, Inc.

. . . *Turn to page* 164

Don't Lose that Machine!

SPECIFY IVES REPLACEMENT PARTS

Machines lost to downtime mean lost production for you. In addition to the expense of individual machine repair, "lost" machines can create a serious break in your production schedule. Avoid the crippling effects of lost production . . . be wise, specify Ives!

Ives parts are specially made to give you an extra measure of smooth, trouble-free production time. Every Ives part is hand crafted to the **exact** requirements of your machine. This superior workmanship means extra wear for you . . . at no extra cost!

Insure your plant's production schedule . . . specify "Ives Replacement Parts" for any of the following machines:

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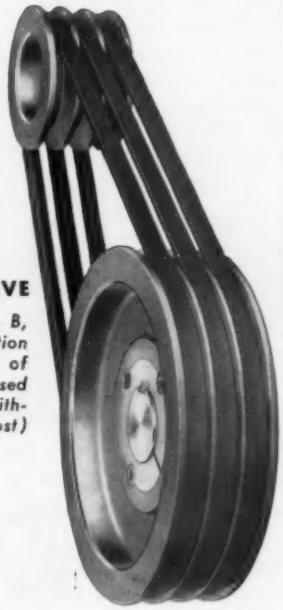
THE LOYAL T. IVES COMPANY, INC.
NEW BRUNSWICK, N. J.

an entirely new line of V-Belt Drives.....

DODGE Dyna V



BIG-GROOVE TAPER-LOCK DRIVE

(— using standard A, B, C, D and E cross section belts, the hp ratings of which have been increased an average of 40% without any increase in cost)

DYNA-V TAPER-LOCK DRIVE

NEW HIGH CAPACITY

NEW COMPACTNESS

NEW SAVINGS IN COST

COMPARISON ILLUSTRATED ABOVE — 3 HP, 1750 RPM, 2.41 TO 1 RATIO

	BELTS		SHEAVES			CENTER DISTANCE	HP	WEIGHT (LBS.)	COST	
	Number	Size	O.D. Driver	O.D. Driven	Width				Per hp	Per Drive
BIG-GROOVE TAPER-LOCK DRIVE	3	A42	4.15"	8.95"	2½"	12.3"	4.62	24.7	$5.55	$25.73
DYNA-V TAPER-LOCK DRIVE	2	3V400	3.35"	8.00"	1$\frac{3}{32}$"	10.8"	5.0	18.0	$4.50	$22.41
% SAVING *Savings vary with different sized drives*			**19%**	**10%**	**56%**	**12%**	+	**27%**	**18.9%**	**12.5%**

Dyna-V Drives are sensationally compact. They are capable of handling up to three times as much horsepower in a given space. Dyna-V opens vast new possibilities for better, more economical equipment design. And, in most instances, *Dyna-V costs less!*

Narrower grooves, to match stronger, narrower Dyna-V Belts, greatly reduce the face width and the weight of Dyna-V Sheaves. Cost is lowered. Smaller diameter sheaves and shorter center distances multiply savings.

Dyna-V Sheaves decrease shaft overhang—increase bearing life. The new dimensional stability of Dyna-V Belts solves the problem of belt matching. Every belt carries its full share of the load.

Dyna-V Drives are available for capacities from 1 to 1500 hp. Ask your Dodge Distributor. Or write us for new Dyna-V Bulletin.

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DODGE of Mishawaka, Ind.

CALL THE TRANSMISSIONEER—your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look under "Dodge Transmissioneer" in the *white* pages of your telephone directory, or in the yellow pages under "Power Transmission Machinery".

relaxed drying for broad wovens

the REELAX-JET

ADJUSTED OVERFEED—Cloth speed precisely regulated.

CONVEYING SYSTEM—Air pervious reels transport and support fabric.

CONTROLLED TEMPERATURE—Gas fired or steam heated . . . ideal for curing.

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PRE-FAB CONSTRUCTION—Factory assembled sections quickly erected or added to existing installations.

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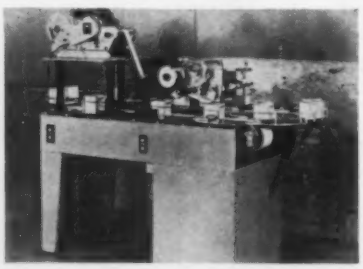
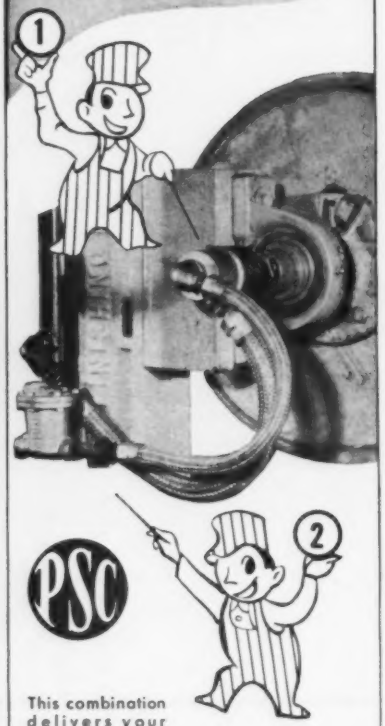
E-45—Sweeper, Model 1054, cleans 300,000 square feet of floor per hour. It has a 54-in. main broom. With side brooms the swath covered goes up to 76 inches. Unit has 16-cu.-ft. hopper that dumps hydraulically in 8 seconds. Drive is hydra-mechanical with variable speed and single-foot pedal control. Broom and vacuum speed is constant. Main broom has eight easily replaced broom strips. Wayne Mfg. Co.

E-46—Air brake comes in three models for use up to 4,300-in.-lb. torque. Forced draft-fin cooling protects the friction disk from heat build-up. Result: no brake fade. It uses flange- or torque-arm type universal mountings. Unit is self-adjusting. Morton Mfg. Co., Inc.



E-47 — Labeler-imprinter-conveyor makes textile packaging versatile. It handles pouches, bags, and cartons. Imprinter is electrically coupled to the labeler. It automatically feeds printed labels at up to 120 per minute. Label register uses an electric eye and timer. Conveyor operates at speeds from 1 to 110 fps. Label sizes range from 1⅝x½ to 4¾x4½ inches. Uses type or rubber plates. Avery Label Co.

How TO PREVENT OVER or UNDER DRIED Warps and Cloth



PSC

This combination delivers your predetermined amount of steam to slashers, dry cans, embossers, etc. without loss or fluctuation and thereby eliminates one cause of over or under dried places in warps and cloth.

① **THE ROTARY UNION*** is the finest precision mechanical seal ever offered for revolving equipment. Heavy Monel bellows automatically maintain equal pressure at all points against an optically flat sealing face, regardless of machine or unit wear. Unique syphon construction assures maximum removal of condensate from cylinders.

② **THE UNITRAP®** is the only steam trap which *automatically* delivers peak efficiency at all pressures from 0 to 125 lbs. without adjustments or orifice changes. Its exclusive Dual-Valve* insures rapid discharge of condensate without loss of steam or heat.

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For Steady, Unexcelled Production Of Tricot Fabric

the 170" EXCENTRA 2-3-4 BAR TRICOT MACHINE

Day in, day out, trouble-free, efficient, continuous production of exquisite tricot fabric, mill-proved in excess of 950 courses per minute, is only one of the many advantages provided by this improved model of the EXCENTRA tricot knitter. Its low and stream-lined design provides ready access to knitting elements. It permits the widest pattern range in virtually all commercially used yarns: 15 denier monofilament nylon—40 denier unthrown nylon—all thrown nylon—Dacron—acetate—viscose, etc.

Superb engineering such as a one-piece frame construction, crank-lever power transmission and precision-crafted parts greatly minimize noise and vibration and completely eliminate distortion.

Beam flange diameters from 14" to 30" are suitable for use on the EXCENTRA. Unobstructed yarn path (on 42" centers) permits use of larger warps. All control instruments (take-up, left-off, production counter, speed indicator, etc.) are grouped compactly at pattern wheel end of machine. Standard equipment includes: Adjustable speed 3-phase motor—automatic yarn control signal—speed indicator—total production counter and predetermined electric shut-off counter.

- **Vibration-free single unit welded steel frame, completely distortion-free.**
- **Knitting motion actuated by eccentrics and crank levers. No cams, cam rollers or counter cams.**
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- **Positive cloth take-up for all commercial tricot qualities and yields.**
- **Automatic power-driven let-off with indicator lamps for accurate yarn control.**
- **Tuck stitch control device supplied on request.**
- **Automatic lubrication throughout—simplified maintenance.**
- **Chain link or pattern wheel drive.**

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TEXTILE WORLD . . . New Literature

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TEXTILE MACHINERY & AUXILIARY EQUIPMENT

L-1—Infrared equipment. Flat banks, contour ovens, and spherical furnaces are generally discussed. Applications in various fields are included in 4-p. booklet. Fostoria Corp.

L-2—Sprockets. Catalog CD-104-A lists complete specifications and engineering data. Detailed tables make selection of sprockets, pins, and hubs easy. Three-hole punched. Browning Mfg. Co.

L-3—Nonskid pads. Their composition, suggested uses, and various properties are outlined. Chemical properties are rated good, fair, or poor in technical bulletin. American Felt Co.

L-4—Variable-speed drives. Two types of sheaves are described in Bulletin 25103. Lists diagrams and specifications of each model. Text covers operating principles. T. B. Wood's Sons Co.

L-5—Viewer. Companion bulletins discuss the advantages of this accessory. Illustration shows a sample recording. Four control units are described. Three-hole punched. Foster Machine Co.

L-6 — Transmission equipment. Each product is illustrated and discussed. Condensed catalog provides references to other bulletins for more detailed information. T. B. Wood's Sons Co.

CHEMICALS & SUPPLIES

L-7—Resin Latex. Data on properties are offered in 6 pages. Nonwoven fabrics, textile finishes, and wallpaper coverings are some of the application areas covered. National Starch & Chemical Corp.

L-8—Polyvinyl alcohols. An application section and a physical property section comprise this comprehensive catalog. Graphs, tables, and charts illustrate the text. Air Reduction Co., Inc.

L-9—Alkylated phenols. Physical and chemical properties, structural formulas, uses, and applications are given for four compounds. A typical resin formula is included. Koppers Co., Inc.

L-10—Silicone antifoams. Easy-to-read chart lists properties, descriptions, and directions for use. Types, selection, and uses of antifoams are discussed in brochure. Hodag Chemical Corp.

L-11—Silicone fluids. A physical-data summary chart and a silicone-fluid selector are contained in 20-p.

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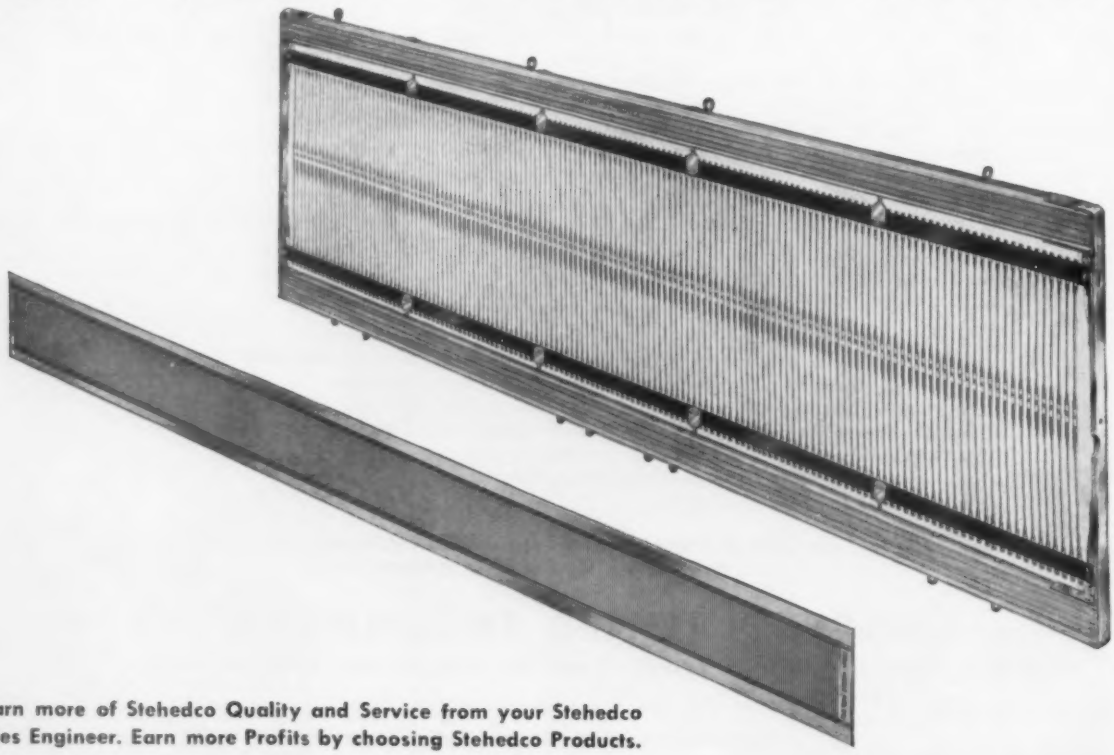

Learn more of Stehedco Quality and Service from your Stehedco Sales Engineer. Earn more Profits by choosing Stehedco Products.

Booklet S-9. Property index provides a good method of selection. General Electric Co.

L-12—Chemicals. Their applications in processing and printing textiles are discussed in 16-p. catalog. Over 80 products are briefly described in chart form. Nopco Chemical Co.

L-13—Latices. Data on three compounds with price sheets are offered in folder. Tables list various properties and formulations. Raw-materials suppliers are named. Goodyear Tire & Rubber Co.

ENGINEERING

L-14—Magnetic drives. Bulletin 3650 details the basic components, theory of operation, controls, and design features. Charts point out specifications and dimensions. The Louis Allis Co.

L-15—Spring pins. Sixteen different applications are described and illustrated in bulletin. Includes complete specification data. Table shows materials and finishes. Standard Pressed Steel Co.

L-16—Cylinders. Selection by size, thrust, bore, stroke, and mounting is included in 32 pages. Bulletin is well illustrated with drawings and photos. Flick-Reedy Corp., Miller Fluid Power Div.

L-17—Centrifugal pumps. Bulletin 108 discusses features and applications. Parts are identified in cutaway drawings. Includes selection, dimensional, and limitation charts. The New York Air Brake Co.

L-18—Control valves. Their construction and operation are explained in 2-color booklet. Illustrates optional actuators and accessories. Three-hole punched. Conoflow Corp.

L-19—Heating-cooling coils. Technical Data Bulletin 356 aids in their selection. Includes typical load computations, logarithmic mean temperature difference, and coil dimensions. Dean Products, Inc.

L-20—Needle valves. Sectional and exterior views illustrate various models. A 4-p., 3-color circular contains complete dimensions in inches, and weight in pounds. Lunkenheimer Co.

L-21—Gage valves. Data Units 397 and 398 illustrate and describe features, styles, sizes, and construction. Drawings and tables show standard and optional features. Jerguson Gage & Valve Co.

INSTRUMENTS & TESTERS

L-22—Level controls. Design and construction are depicted in drawings. Text covers applications. Specification and selection charts are included. How-to-order folder enclosed. Fielden Electronics, Inc.

L-23—Metal detectors. Several models indicate a variety of applications. Installation requirements and environmental and operational factors are discussed in 8-p., 2-color

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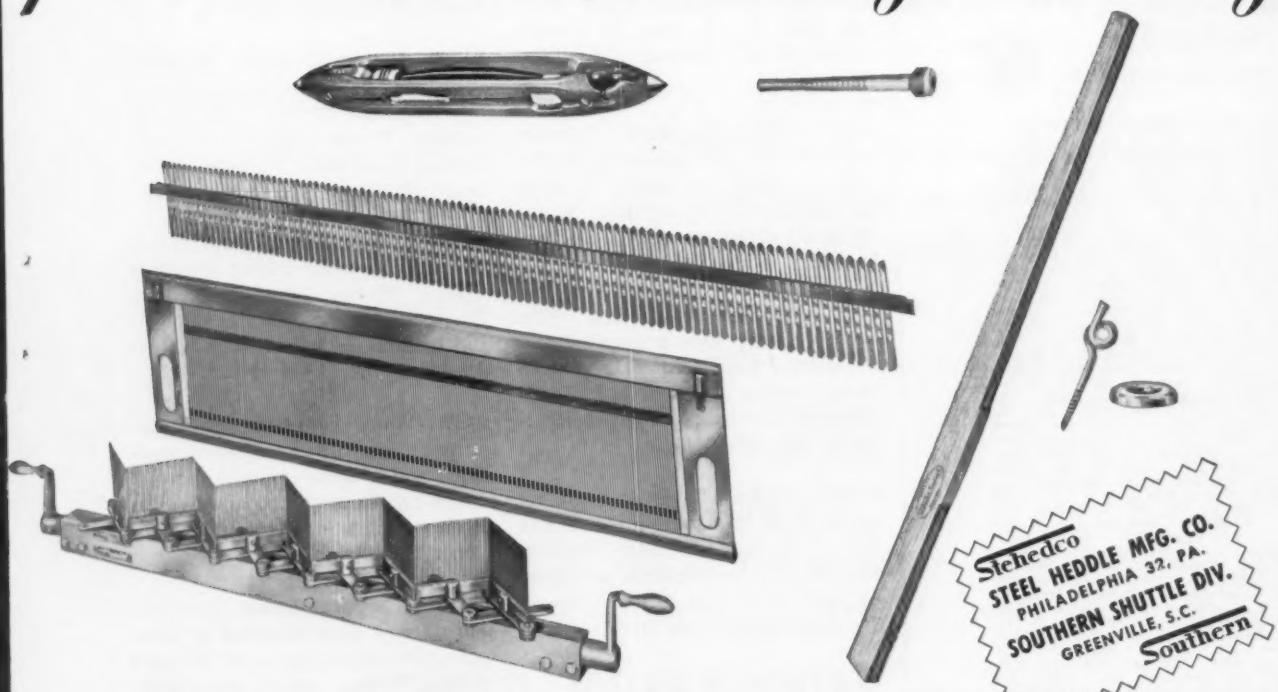

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NEW LITERATURE

. . . *Begins on page 166*

For more information on any of these items, just circle appropriate number on the Reader Service Card, next to back cover.

bulletin. Morehouse Machine Co.

L-24 — Temperature transmitter. Bulletin 13-17C explains design features. Specifications, description of operating principle, and a table of temperature ranges are included. The Foxboro Co.

L-25—Instruments. Products are illustrated and described in 48-p. Catalog G-106. Lists references to other literature and prices for each model. Minneapolis-Honeywell Regulator Co.

MATERIAL HANDLING

L-26—Cord strapping. Its widths and lengths are listed in charts. Various applications and accessories are illustrated in a 2-color brochure. Strapping-type numbers included. American Viscose Corp.

L-27—Case sealer. Diagrams of specifications are included and features are outlined. Photos show operation of machine in 2-color folder. A-B-C Packaging Machine Corp.

L-28 — Framing ideas. Data on ready-to-assemble kits comprise one section. Steps to creative framing are discussed. More than 30 installation photos are offered in 24-p. booklet. Acme Steel Co.

L-29—Fiber-glass products. This 4-p. brochure lists properties and complete specifications for tote boxes, industrial trays, and a centrifugally molded pipe. Apex Reinforced Fibre-Glass Div.

L-30—Trucks. Their applications are featured in many photos. Short history is offered in 20-p. booklet. Includes new products and an industry preview of one model. Hyster Co., Industrial Truck Div.

CLEANERS & FILTERS

L-31—Air filters. Specifications and prices aid in selection of products. Diagrams and text explain the operation in 2-color Bulletin 118. Lists data on applications. R. P. Adams Co., Inc.

L-32—Air cleaner. Construction, design, and maintenance are featured in Bulletin 258B. Detailed charts and diagrams list capacities and dimensions of two types. American Air Filter Co., Inc.

L-33—Dust filter. Specifications and dimensions of single and multiple units are detailed. Design and construction are explained with diagrams Typical installations are pictured. The Day Co.

L-34—Dust control. Each model is described and illustrated with photos and line drawings. Typical installations are shown. Text discusses advantages of such a system. Pangborn Corp.

GENERAL

L-35—Security services. Thirteen case histories are reviewed, including estimated savings and cost of survey. Various services are outlined in handbook. Pinkerton's National Detective Agency, Inc.

L-36—Spray enamels. Bulletin lists 18 colors for color-coding inventory stock. Photos show application. Text concisely describes advantages and features in 1-p. bulletin. Reynolds Ink, Inc.

L-37—Water conversion. A description of the distillation technique and a cross-sectional view of a unit supplement the photos. Potential applications are indicated. General Electric Co.

L-38—Cellophane codes. This system offers a direct method of computing unit packaging costs. Detailed chart also offers data on characteristics, uses, and prices. American Viscose Corp., Film Div.

What's going to be good for you...for 1962?

New Wovens are going to make news. They'll be of 100% Celanese fibers, or in blends and combinations with the newer high-performing rayons such as Avron, Avril, Avlin, Corval, Zantrel, etc.

Long-Time Favorites will be in even bigger favor . . . batistes, voiles, sheers, poplins, sharkskins, tropicals, cords, crepes, linen-types, seersuckers, shantungs and chambrays. In plain and novelty weaves and patterns in a wide range of colors, weights and finishes. The traditional broadcloths, piques, plaids, checks, flannels, failles, denim-types, taffetas, etc. in even greater volume than previous years.

Knits will continue to be sensational, in the whole range of weights and textures. Glamour knits, including novelty and metallic versions, have great potential.

Get them in production for 1962. They're going to be what leading converters, manufacturers and consumers ask for. They're going to be promoted in depth, bought and sold in volume.

They're going to be good . . . for *you.*

And they'll be even better made with Celanese contemporary fibers: *Celanese acetate*, the beauty fiber; *Arnel triacetate*, the ease-of-care fiber; *Celaperm acetate*, the fiber with "sealed-in" color; *Fortrel polyester*, the fiber that keeps its promise!

Celanese Fibers Company, 522 Fifth Avenue, New York 36 (a division of Celanese Corporation of America) Celanese® Arnel® Celaperm® Fortrel® is a trademark of Fiber Industries, Inc.

Celanese contemporary fibers

Advertisers' Literature

To get items you want offered in the advertisements in this issue, just circle numbers on Reader Service Card next to the back cover. If all bulletins listed under one number are not required, please write on card the name of bulletin desired.

A-350—Electric motion control. For textile machinery controls write for full details and data. Warner Electric Brake & Clutch Co.

A-351—Cloth guide. A free catalog is available on these air guides. Guider Specialty Co.

A-352—Unions and fittings. Yours on request is the descriptive brochure on unions and fittings. The Fairbanks Co.

A-353—Softeners. Write for data Bulletin C-5 for details. W. F. Fancourt Co.

A-354—Rotary union. For full information write for Bulletins 700 and 800. Perfecting Service Co.

A-355—Vibration mounts. Sample and free book are yours on request. Unisorb Div., Felters Co.

A-356—Drafting system. For information request Technical Bulletin FC-101. Roberts Co.

A-357—Belts. Send for Catalog L160 for information on flat and round belting. Charles Bond Co.

A-358—Kiers. Circular giving complete information is yours on request. William Allen Son's Co.

A-359—Dyeing, drying, and finishing machinery. In writing for literature mention the machines that interest you. Turbo Machine Co.

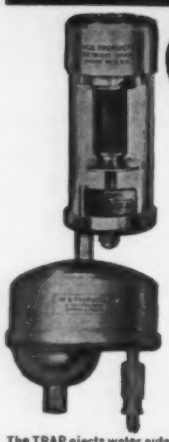
A-360—Hydrogen peroxide. Booklet "Solvay Activate Hydrogen Peroxide Bleaching Process for Cotton" is available. Solvay Process Div.

A-361—Transmission. Dyna-V Bulletin for information on V-belts and sheaves. Dodge Mfg., Corp.

A-362—Valves. Send for Circular 612. The Lunkenheimer Co.

A-363—Belts. Request Bulletin M201 for complete details. Manhattan Rubber Div., Raybestos-Manhattan, Inc.

GREATER PROTECTION to your AIR LINE!



M-B

AUTOMATIC WHIRL-A-WAY AIR LINE FILTER MODEL W-1 and TRAP

RIBBON TYPE FILTERING UNIT removes solids .00039 and larger. Transparent plastic bowl makes filtered foreign matter visible. Gives maximum protection to all types of Lint blowers, Blow-off Hoses and various air-operated controls.

The TRAP ejects water automatically. Operates upon accumulation of 3 to 4 ounces. Discharges in less than 5 seconds. Assures dry air in pneumatic system at all times. Non-corrosive throughout.

M-B PRODUCTS
46 VICTOR AVE., Div. 11
DETROIT 3, MICHIGAN

CIRCLE 256 ON READER SERVICE CARD

A-364—Power transmission. For information on drives, send for Bulletin 21103. T. B. Wood's Sons Co.

A-365—Overhead tramrails. Write for Engineering and Application Booklet No. 2008 for handling problems. Cleveland Tramrail Div., The Cleveland Crane & Engineering Co.

A-366—Paints. Bulletin "Imron Textile Floor Finish" is available on request. Finishes Div. TW14, E. I. du Pont de Nemours & Co., Inc.

A-367—Resins. Write for 24-p. Piccopale catalog. Pennsylvania Industrial Chemical Corp.

A-368—Lubrication. Request Catalog 34-49 for information on lubricating systems. Alemite Div., Stewart-Warner Corp.

A-369—Scales. Request Bulletin 2017 showing printed weight records. Toledo Scale Div., Toledo Scale Corp.

Calendar

September

AATT, monthly meeting, Della Robbia Room, Hotel Manger-Vanderbilt, New York, Sept. 6

Combed Yarn Spinners Association, annual meeting, The Greenbrier, White Sulphur Springs, W. Va., Sept. 7 & 8

Northern Textile Association, annual meeting, Poland Spring House, Poland Spring, Me., September 14 & 15

AATCC, Palmetto Section, Clemson House, Clemson, S. C., Sept. 15 & 16

The Elastic Fabric Manufacturers Institute, Inc., The American Power Net Association, New York, Sept. 19

Carded Yarn Association, annual convention, The Cloister, Sea Island, Ga., Sept 21 & 22

Southern Textile Methods and Standards Association, semiannual meeting, Clemson House, Clemson, S. C., Sept. 21 & 22

AATCC, Piedmont Section, Hotel Charlotte, Charlotte, N. C., Sept. 23

AATCC, national convention, Hotel Statler, Buffalo, N. Y., Sept. 27 to 29

October

AATT, monthly meeting, Della Robbia Room, Hotel Manger-Vanderbilt, New York, Oct. 4

American Institute of Electrical Engineers, Textile Industry Committee, Conference on Electrical Applications for the Textile Industry, Barringer Hotel, Charlotte, N. C., Oct. 5 & 6

North Carolina Textile Manufacturers Association, Inc., annual meeting, Carolina Hotel, Pinehurst, N. C., Oct. 5 & 6

Textile Quality Control Association, fall meeting, Sedgefield Inn, Greensboro, N. C., Oct. 5 & 6

Alabama Textile Operating Executives, fall meeting, Thach Auditorium, Auburn, Ala., Oct. 7

International Federation of Knitting Specialists, annual conference, Belle Vue, Manchester, England, October 9 to 11

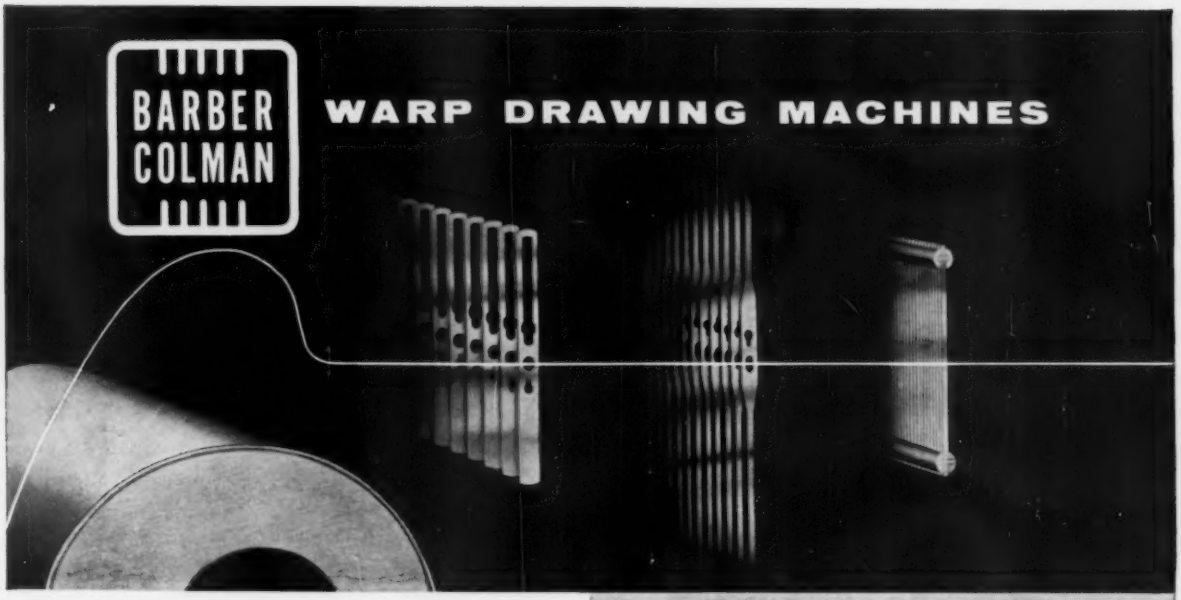
Georgia Textile Operating Executives, fall meeting, Hightower Building, Georgia Institute of Technology, Atlanta, Oct. 14

November

National Cotton Council of America, Chemical Finishing Conference, Washington, D. C., Nov. 8 & 9

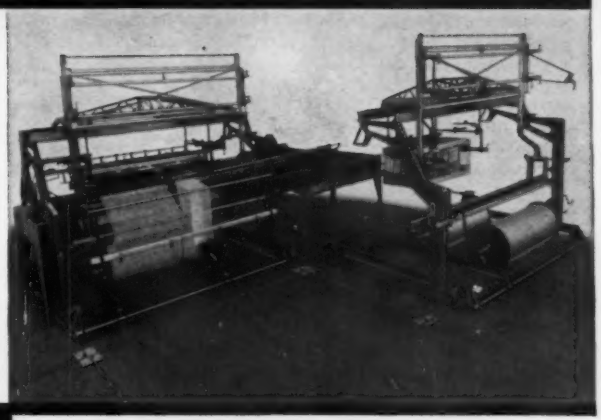
BARBER COLMAN

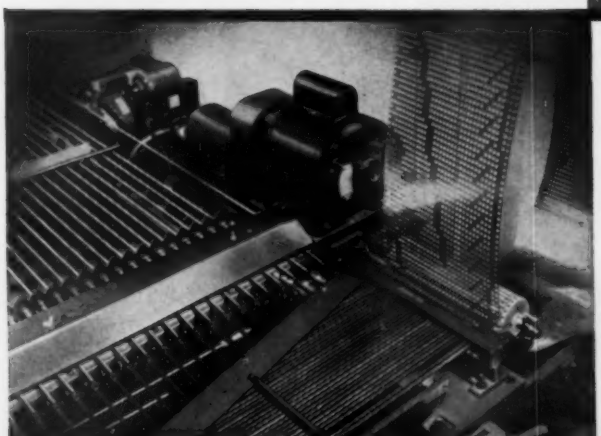
WARP DRAWING MACHINES



DRAW ALL 3 ELEMENTS... HEDDLES, DROP WIRES, REED

This modern Model SH (shown here in the two-truck type) permits drawing-in of keyhole type steel heddles in combinations up to 24 frames and with or without 8 or less banks of closed-end drop wires, plus reed. At each stroke of the needle the proper combination of all elements is accurately drawn, in correct sequence, under positive mechanical control, and at a rate of up to 4500 ends per hour. These machines are of tremendous value in meeting the challenge of today's fast-changing textile merchandising.





CONTROLLED BY PATTERN PUNCHED FROM DESIGN DRAFT

This perforated pattern, which can be punched in either metal or paper, governs all the coordinated actions of the machine. As an example of versatility, the pattern shown is for a split sheet draw from two warp rods, entered in 22 harness, 6 banks of drop wires, and two threads per dent in the reed.

WRITE FOR BOOKLET

Ask for this Bulletin 2442 and learn about the details of Warp Drawing Machines. Color illustrations show various types of complex patterns that can be precisely and efficiently drawn-in.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

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Batliboi & Company Forbes Street, Fort Bombay, India	J. Rabasa Isabel la Catolica 45 S13 Apartado 7348 Mexico D.F. Mexico	Industria e Comercio de Maquinas S. A. Avenida Rio Branco No. 50, Rooms 1201/3 P. O. Box No. 63 Rio de Janeiro, Brazil	Do-Yei Shoji Kabushiki Kaisha Atlas Building (7th Floor) 11, Bingo-machi, 3-chome, Higashi-ku, Osaka, Japan	Associated Agencies (M'cr.) Ltd. Piccadilly House 11 Piccadilly Manchester 1, England	Associated Agencies (M'cr.) Ltd. 27 Kothari Building Napier Road Karachi 2, Pakistan

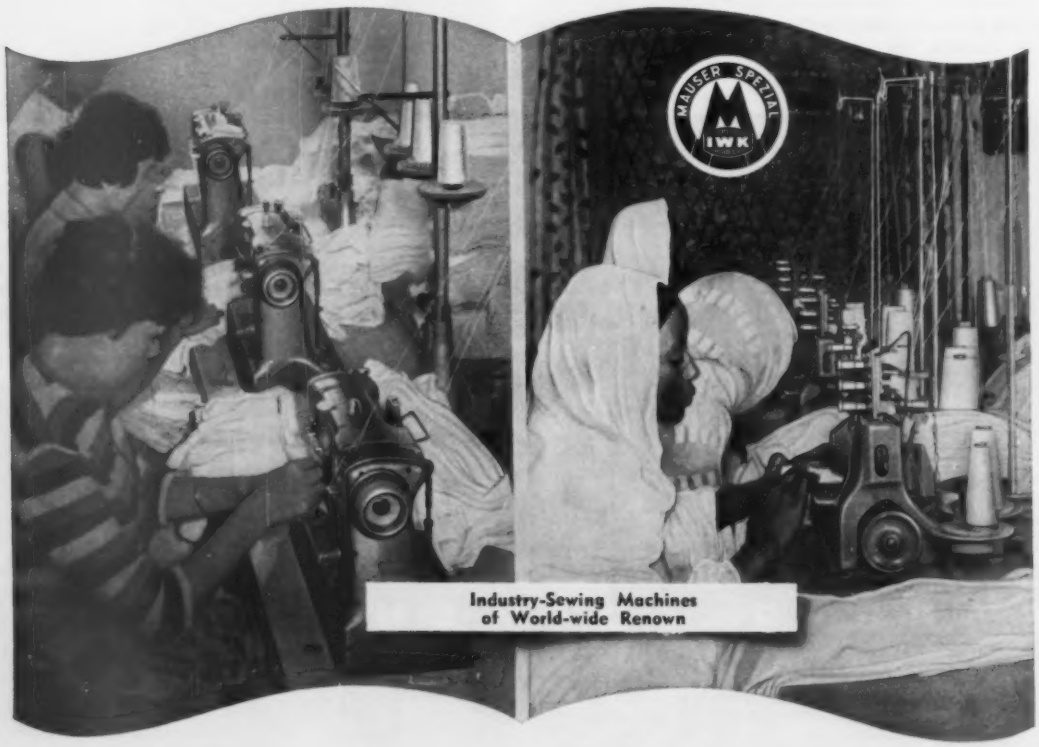
TEXTILE WORLD . . . News About Suppliers

ALLIS-CHALMERS MFG. CO., Milwaukee, has appointed the following: Andrew Wassell, manager, utility sales, and W. W. Chalmers, manager, industrial sales, Charlotte district; Thomas L. Dineen, manager, Cleveland district; and Henry M. Brundage, manager, Chattanooga district. The company has designated Textile Sales & Service Co., Atlanta, a distributor and agency for its Industrial Group products. . . . **AMERICAN CYANAMID CO.,** New York, has named Jason M. Salsbury director of fibers research for the Fibers Div. These appointments have been made at the Santa Rosa plant: Richard J. Franz, manager of the technical department; Richard W. Leins, manager of the engineering department; and John J. Fitzgerald, manager of the production department. . . . **AMERICAN MOISTENING CO.,** Atlanta, has announced the retirement of J. D. Johnson as sales engineer after 53 years with the firm. . . . **AMERICAN VISCOSE CORP.,** Philadelphia, has assigned Leslie L. Walmsley technical service responsibilities to the dyeing and finishing trade.

ARNOLD, HOFFMAN & CO., INC., Providence, has announced that Thomas W. Hardy has joined its sales staff. He will service textile dyeing and finishing plants in the New England area. . . . **BABCOCK & WILCOX CO.,** Barberton, Ohio, has named Seth M. Snyder Pittsburgh district sales manager to succeed W. I. Collins, who is retiring after 35 years of service. Other appointees in the Boiler Div. are: J. W. Thompson, Charlotte district sales manager, and J. E. Roberson, sales engineer in Cincinnati. . . . **H. W. BUTTERWORTH & SONS CO.,** Bethayres, Pa., has been named United States sales agent for textile finishing machinery manufactured by Joh. Kleinewefers & Sohne, Krefeld, Germany. . . . **CARPENTER STEEL CO.,** Reading, Pa., has promoted Robert C. Meili to assistant manager, stainless-steel sales.

DANA P. DOWNING (left) has joined Diamond Crystal Salt Co., St. Clair, Mich., as assistant manager of industrial sales. WILLIAM L. MADDEN (center) has been appointed sales representative in South Carolina and northeastern Georgia for Louis P. Batson Co., Greenville, S. C. WILLIAM A. HARMON (right) has joined the development engineering staff of James Hunter, Inc., Mauldin, S. C.

CHEMSTRAND CORP., New York, has purchased a 4.5-acre site in Greenville, S. C. Construction is beginning on the site for an office building to be used as a data processing center. . . . **CROMPTON & KNOWLES CORP.,** Worcester, Mass., has announced that David P. Scattergood has joined the firm as assistant treasurer. . . . **E. I. DU PONT DE NEMOURS & CO.,** Wilmington, Del., is constructing additional facilities at New Johnsonville, Tenn., as the first step in a major expansion program. The firm will expand the output of titanium dioxide pigment by 30% in the next year at this plant. . . . **FAIRBANKS CO.,** New York, has moved its Boston branch office and warehouse to a new building at 767-A Concord Ave.,



INDUSTRIE-WERKE KARLSRUHE Aktiengesellschaft · KARLSRUHE

Cambridge, Mass. . . . **FAULTLESS CASTER CORP.,** Evansville, Ind., has appointed Lee C. Barr sales representative for the newly established office at Memphis, Tenn. He will serve the southern Alabama, Arkansas, Louisiana, Mississippi, western Tennessee, and northern Florida territory.

GENERAL ANILINE & FILM CORP., New York, has named Raymond F. Welter district manager of the newly created Southwestern district office of Antara Chemicals. The company's new office will be located at 3939 Essex Lane, Houston. . . . **HERCULES POWDER CO.,** Wilmington, Del., has promoted James W. L. Monkman to the newly created post of director of sales for plastics in the Polymers Dept. . . . **HEYDEN NEWPORT CHEMICAL CORP.,** New York, through its division, Nuodex Products, has appointed the Amica Div. of F. H. Ross & Co. Nuodex representative to the protective coatings industry in southern Florida . . . . **KOPPERS CO., INC.,** Pittsburgh, has named John S. Atwood assistant to the vice president of the Plastics Div. He will coordinate the engineering and production work of the division.

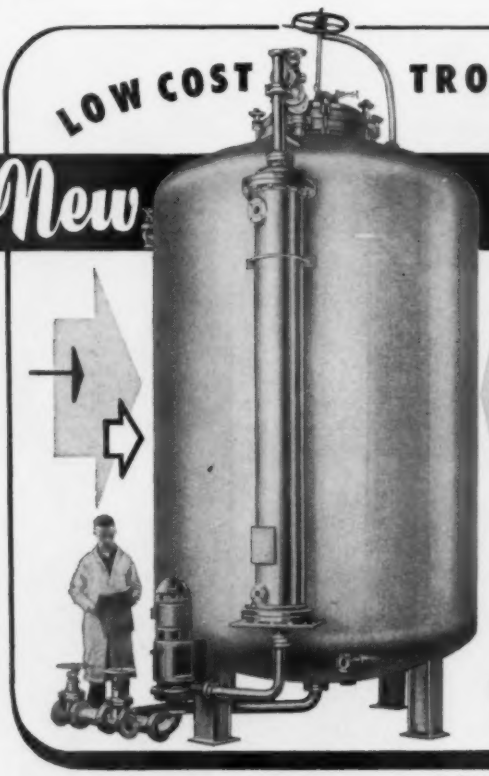
MEADOWS MFG. CO., Atlanta, has accepted a research and development license from Ronald H. Marks of Dallas. The firm will develop a twisting machine for slitting and twisting papers and other fibers using the Marks system. . . . **METRO-ATLANTIC, INC.,** Centredale, R. I., has named Gerald J. Sarracino general manager of the Southern Div. . . . **MIDLAND-ROSS CORP.,** Cleveland, has promoted Norman Swift to manager of public relations. . . . **MINNEAPOLIS-HONEYWELL REGULATOR CO.,** Minneapolis, has formed a new unit of its Electronic Data Processing Div. The unit, called the Programming Systems Div., will be solely responsible for the design and development of automatic programming systems for computers. Dr. Joseph H. Levin has been appointed director of the new division. . . . **NATIONAL DRYING MACHINERY CO.,** Philadelphia, has announced that David A. Colker has resigned as vice president, but will continue to serve as a director and technical consultant. Mr. Colker is now reorganizing the Chemical Packaging Co. of Florida.

MELBOURNE P. BINNS (left) has been named Atlanta regional manager of the Industrial Chemical Div., Pennsalt Chemicals Corp., Philadelphia. IRVING FISCHER (center) has been promoted to manager of the newly expanded Mid-Atlantic Div. of National Starch & Chemical Corp., New York. RAYMOND S. FRIES (right) has been appointed manager of manufacturing and engineering of the Brown Instruments Div., Minneapolis-Honeywell Regulator Co., Philadelphia.

PARKER-HANNIFIN CORP., Cleveland, has named James P. Mockler New England regional manager with headquarters in Wellesley Hills, Mass. . . . **PENNSALT CHEMICALS CORP.,** Philadelphia, has elected James McWhirter a vice president. The following have been named to staff positions in the Marketing Planning Dept.: John J. Kilkeary, William D. Silcox Jr., and Clair A. Lippincott. . . . **PERMACEL,** New Brunswick, N. J., has appointed Robert B. Cook product manager of specialty paper products. . . . **N. V. PETROCHEMIE AKU-AMOCO,** Delfzijl, Netherlands, is the name of a new subsidiary jointly owned by Amoco International, S. A. and Algemene Kunstzijde Unie N. V. to manufacture dimethyl terephthalate. AKU manufactures Terlenka polyester fiber, which is made from dimethyl terephthalate. The new company is building a plant at Delfzijl. . . . **PITTSBURGH PLATE GLASS CO.,** Pittsburgh, is building a plant at Lake Charles, La. The new

LOW COST TROUBLE-FREE OPERATION ...EASY INSTALLATION

New ALLEN PACKAGE DESIGN KIERS



For boiling or bleaching all types of cotton goods from gauze to heavy twills, these new ALLEN stainless steel Package Design kiers offer unusual opportunities for more profitable operation to small and medium sized bleacheries and those doing fine fabrics. Large plants, too, find them extremely useful for short runs and special fabrics. In many cases, they are replacing continuous bleaching operations for certain types of goods. Allen Package Design Kiers feature:

- **A completely prefabricated unit — pump and heater are integral parts of the kier — for easier installation and maintenance.**
- **Smooth, stainless steel interiors eliminate rub, rust and stain marks.**

Write today for circulars giving complete information on this as well as Allen kiers for knit goods and kiers for cotton and cotton batting.

William Allen Son's Company
SHREWSBURY • MASSACHUSETTS

A Division of O. G. KELLEY & COMPANY, Boston 22, Mass.

CIRCLE 173 ON READER SERVICE CARD

HOW DU PONT PUTS YOU DOLLARS AHEAD IN MAINTENANCE PAINTING

Ben Warwick is a paint expert who specializes in the solution of maintenance problems for the textile industry. As a member of Du Pont's Technical Service Group, he has but one function: to help you cut the cost of maintaining your substantial investment in plant and equipment. As Ben sees it:

"To insure maximum return for every dollar spent on paints and painting, the only true measure of value is cost-per-square-foot-per-year. Take it from me, an additional paint dollar spent initially can save ten later on. When you specify Du Pont finishes, however, you're getting more than top-quality paints. You're getting sound paint practice, backed up by proven field performance.

"A case in point is our new IMRON(T.M.) Textile Floor Finish, a single package oil-free urethane clear for all interior wood and concrete floors. With this new finish, you can apply the first coat on an off-day morning, the second that afternoon and let full traffic back on it at midnight! In actual on-the-job tests, IMRON has delivered up to 3 times the durability of conventional first-grade floor seals.

"Naturally, our recommendations don't stop with selection of the proper finish. To effect the kind of savings that translate maintenance dollars into profit dollars, the right paint system is just as important. We work closely with your maintenance men, drawing on our own experience to provide expert guidance all along the line. The result: paint maintenance tailored to your particular needs, at lowest cost per square foot per year."

For more information on Du Pont's full line of quality finishes for every maintenance need, contact the Du Pont district sales office in your area. To receive Du Pont's technical bulletin, "IMRON Textile Floor Finish," clip and mail the coupon below. There is no obligation whatever.

E. I. du Pont de Nemours & Co. (Inc.)
Finishes Division, Department TI-14
Wilmington 98, Delaware

Please send me, without obligation, the Du Pont technical bulletin, "IMRON Textile Floor Finish."

Name_____
Firm_____
Street_____
City_____ Zone____ State_____

MAINTENANCE PAINTS

DU PONT

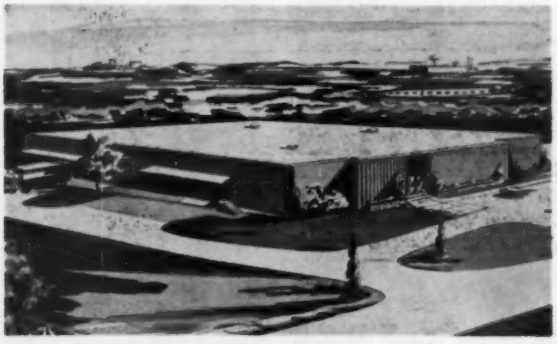
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING ... *THROUGH CHEMISTRY*

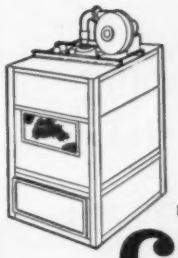
plant, part of the chemical division, will produce 15,000 tons of sodium chlorate per year. . . . **PRECISION SCREEN MACHINES CO., INC.,** Hawthorne, N. J., is constructing a 30,000-sq.-ft. manufacturing and office building. . . . **REPUBLIC TEXTILE EQUIPMENT CO.,** New York, will liquidate the machinery and equipment of the former Eureka Print Works, Clifton, N. J. . . . **ROBERTS CO.,** Sanford, N. C., in an exchange of stock has acquired the Black Panther Co., Inc., a charcoal producer and chemical company. . . . **ROHM & HAAS CO.,** Philadelphia, has announced the retirement of Parker H. Del Plaine as Southern manager of the Textile Chemicals Dept. W. A. Wardell will succeed Mr. Del Plaine. . . . **SHAFFER & MAX, INC.,** Allentown, Pa., and its affiliated company, Alliance Textile Machinery Corp., also of Allentown, have appointed Michael P. De Leo their Southern representative. . . . **SHELL CHEMICAL CO.,** New York, is building hydrogen peroxide bulk-storage facilities near Charlotte, N. C. The new facilities will provide faster tank-truck service to the textile and allied industries in the Carolinas, Georgia, and Virginia. Edward L. Patton has joined the firm's textile chemical staff with headquarters in Charlotte.

A. E. STALEY MFG. CO., Decatur, Ill., has opened a 108,000-sq.-ft. research center in Decatur. Ely Balgley has been appointed director of the new market-research department. . . . **TEXTILE MACHINE WORKS,** Reading, Pa., has named John V. Sutton manager of the Packomatic Div. He will be responsible for all sales and service of packaging machinery. Vincent Scalese has been promoted to production manager of machine-shop operations. Richard C. Bodey succeeds Mr. Scalese as manufacturing engineering manager. John W. Warren has been named operations manager, foundry. . . . **UNITED STATES RUBBER CO.,** New York, has appointed Claude H. Allard director of marketing of the Naugatuck Chemical Div. . . . **USTER CORP.,** Charlotte, has promoted C. Venoy Boliek to manager. He is responsible for coordinating the operations of the sales, engineering, installation, service, advertising, and Knitrol departments. Jack Taylor has been named assistant to the manager and will handle service, customer relations, and promotional activities. George C. Fryer has been appointed advertising and sales promotion manager.

WESTINGHOUSE ELECTRIC CORP., Pittsburgh, has formed a new industry systems department responsible for the conception, development, design, and sale of complex systems for control of processes in industry. Dr. Patrick Conley has been elected a vice president and is responsible for the new department. Paul R. Sprowl as manager will assist Dr. Conley. . . . **WHITIN MACHINE WORKS,** Whitinsville, Mass., has named Claude M. Banks manager of repair parts and changeover sales in the South with headquarters in Charlotte.



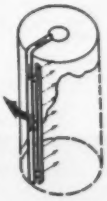
SOUTHERN MACHINERY CO. is building a 30,000-sq.-ft. plant near Greer, S. C. The $200,000 building will house manufacturing, administrative, and clerical offices as well as the company's Research and Development Div.



Cleans air cleaner!

Here's why the Model F Aeroturn filter does a better job of lint and dust collection – saves operating dollars, too

1 Lint laden air is exhausted from openers, pickers, nappers, etc., and is collected in fabric filter tubes. Both lint and dust are removed from filter surfaces; only clean air passes through. Model F is the only lint filter to accomplish this automatically with extremely high efficiency.



2 *Dust* accumulations are removed by a unique blow tube. It rotates slowly in contact with the outer filter surface, discharging a jet of high velocity air through the fabric filter.

3 *Lint* accumulations are removed automatically by an adjustable blade rotating inside the fabric filter. Both the blade and the reverse-air jet blow tube function only when lint and dust accumulations necessitate cleaning.

You'll want complete information about the new Model F Aeroturn. It's the only lint filter designed specifically to solve textile mill air cleaning problems. It saves you on initial cost, installation expense, heating and cooling expenses, floor space and clean-up. It can help you improve your product quality. Write: KOPPERS CO., INC., Dust Filter Dept., 4809 Scott Street, Baltimore 3, Maryland.

KOPPERS AEROTURN® LINT FILTERS

Engineered Products Sold with *Service*

CIRCLE 175 ON READER SERVICE CARD

On August 1, 1961, burlap tubing became obsolete!

Fulton DurLap

new wood cellulose fabric *better than burlap for Roll Goods, All Items!*

Fulton's revolutionary new DurLap tubing is extra strong and durable . . . assures safer shipping . . . allows continuous re-use . . . and provides speed, versatility, and cost-cutting economies in the packing process!

CHECK THESE OUTSTANDING ADVANTAGES Free of lint, odor, oil . . . Water repellent, super strong . . . Resilient knit for neat form-fit . . . Holds stenciling better . . . Custom-dyed colors . . . Competitively priced, Money-back guarantee . . . American made, no delay in delivery.

Telephone 688-1111
TWX: AT 24

Fulton COTTON MILLS
a division of Fulton Industries, Inc.

P.O. Box 1726
Atlanta 1, Georgia

CIRCLE 257 ON READER SERVICE CARD

DOUBLE RUB, FOUR BANK TAPE CONDENSER

Built in 48", 60", 72" widths for adaptation to all carding machines. Write for information.

Duesberg-Bosson of America, Inc.
Main Street Jefferson, Mass. P.O. Box 25

TEXTILE WORLD . . .

News About Men

JOHN F. SHAW (left) has retired as vice president and director of Chicopee Mfg. Corp., New Brunswick, N. J. THOMAS M. McAULEY (right) has been appointed general manager of the firm's operations in Chicopee Falls, Mass.

Edwin B. Bachman will become manager of the new Statesboro, Ga., plant of A. & M. Karagheusian, Inc.

Cameron A. Baker, director of research and development of Better Fabrics Testing Bureau, Inc., has been elected to the New York District Council of the American Society for Testing Materials.

Thomas M. Bancroft Jr. has been named executive vice president of Turner Halsey Co., New York.

W. Raymond Bell has retired as president of the Association of Cotton Textile Merchants of New York.

Archer Booker has joined Greenwood Mills, Greenwood, S. C. He is responsible for acquiring yarns and man-made fibers and will assist in fabric merchandising.

Joseph W. Brady Jr. has been named sales manager of the linen supply department of Dundee Mills, Inc., Griffin, Ga.

H. Richard Carlson has been named assistant manager of the Statesboro, Ga., plant of A. & M. Karagheusian, Inc.

Robert Chapman has become the new superintendent of the felt division of Troy Mills, Inc., Troy, N. H.

Robert E. Coleman has been elected vice president of gray goods, job finishing, and export sales of Riegel Textile Sales Co., New York.

Herman Cone Jr. of Cone Mills has been recently elected first vice president of the Southern Textile Association, Charlotte, N. C.

James V. Corr has been named executive vice president of Buck Creek Cotton Mills, Siluria, Ala.

Hans H. Dahlgren is managing the Industrial Thread Div. of Belding Heminway Co., Inc., New York.

George P. DeBrule has been appointed superintendent of Craftspun Yarns, Inc., Kings Mountain, N. C.

W. B. Etters of Reeves Brothers, Inc. has recently been elected president of the Southern Textile Association, Charlotte, N. C.

Gideon Frankil has recently resigned as vice president of Alvin Knitting Mills, Inc., Philadelphia.

Max Gainer is the new manager of the Erlanger Mills, Inc., Lexington, N. C.

Comann D. Gold has been named a vice president of Cannon Mills, Inc., New York. He is regional sales manager in 12 Southern states and makes his headquarters in Atlanta.

Charles D. Green, vice president and director of Reeves Brothers, Inc., New York, will become general manager of sales and production of the Curon Polyurethane Foam Div.

Benjamin Greenfield of Old Colony Knitting Mills has been elected president of the New England Knitted Outerwear Manufacturers Association, Boston, Mass.

Samuel L. Hagan has retired as vice president of M. Lowenstein & Sons, Inc., New York, after 40 years of service.

H. V. Howes, vice president and director of sales, has retired after 40 years with the Bemis Bros. Bag Co., St. Louis.

J. C. Hubbard has retired as secretary and treasurer of Springs Cotton Mills, Lancaster, Pa., and vice president and treasurer of Springs Mills, Inc., New York.

Jasper W. Huff has been appointed assistant to the superintendent of Vinton Weaving Co., Vinton, Va., a unit of Burlington Industries, Inc.

Joseph H. Jones has been appointed vice president of Phoenix Dye Works, Chicago.

Harold N. Josephs has joined United Merchants & Manufacturers, Inc., New York, as sales manager of the newly formed spun-yarn sales department.

William I. Kent, president of Kent Mfg. Co., has been named chairman of the executive committee of the board, National Association of Wool Manufacturers, New York.

Robert N. Levine has been promoted to sales manager of the hotel and institutional department of Dundee Mills, Inc., Griffin, Ga.

Bertrand D. Manley, vice president in charge of staple cotton gray-goods sales, has retired after 32 years with Berkshire Hathaway, Inc., New Bedford, Mass. **John E. Hartley** will succeed Mr. Manley.

Donald F. McCullough is president and chief executive officer at Collins & Aikman Corp., New York.

Leonard S. McGackin has been appointed Freehold, N. J., plant manager of A. & M. Karagheusian, Inc.

J. Melvin Moore has been promoted to superintendent of the Karastan spinning division of Fieldcrest Mills, Inc., Greenville, N. C.

Russell B. Newton has been elected chairman of the board of Deering Milliken Research Corp., Spartanburg, S. C. **Dr. Linton G. Ray Jr.** has been named president of Deering Milliken Research Corp., succeeding Mr. Newton.

R. E. Caldwell Roane has been promoted to assistant vice president of Burlington Hosiery Co., a division of Burlington Industries, Inc., Burlington, N. C.

Jerry Roth has joined M. Lowenstein & Sons, Inc., New York, as chief liaison executive with government offices that acquire textiles.

. . . *Turn to page 178*

A. N. MOORADIAN has been elected a vice president and general merchandise manager, finished-goods department, Reeves Brothers, Inc., New York.

ROBERT F. STRAHLEY has been promoted to assistant division manager of the Franklin Process Co., Chattanooga, a division of Indian Head Mills, Inc.

BE SURE YOU SPECIFY— ON YOUR NEW FRAMES PNEUMAFIL®

Only PNEUMAFIL gives you exclusive "air flow" suction to "swallow" more air, capture more lint, enable faster front roll speeds. Special ring diffusor fan gives widest range of operation at peak efficiency. Choice of three discharge arrangements.

plus

DELTAFLUTE — A powerful new "lap fighter." Unique shape allows closer flute positioning under front roll. Shorter, wider orifice concentrates air stream at point of maximum lint generation for remarkably good cleaning.

plus

DUFLEX SUSPENSION — Instant and effortless two-position suspension of flutes permits operator to work around rolls with both hands. Eliminates danger of scratched orifices which cause lint accumulation.

PNEUMAFIL CORPORATION • CHARLOTTE 8, N. C.
CIRCLE 258 ON READER SERVICE CARD

JOHN P. NISSEN, JR., COMPANY
P. O. BOX 888 • GLENSIDE, PENNSYLVANIA • U. S. A.

Cable Address "NISSEN" PHILA.

• *for marking*
silk • plush • wool
nylon • rayon • cotton
orlon • worsted • underwear • jersey cloth
mixed goods
• *in dye houses*
• *bleacheries*
• *textile mills*

Nissen all-purpose marking inks

BALL | POINT
dye resist • fulling
bleach proof • caustic proof

writing | tubes

JOHN P. NISSEN, JR., CO.
Manufacturers • Textile Marking Inks
Glenside, Pa

TRADE MARK REGISTERED

CIRCLE 177 ON READER SERVICE CARD

We don't just sell static eliminators

WE SELL STATIC
ELIMINATION—

Yes, guaranteed elimination of static problems that slow-up production and eat up profits, that's what our CURASTAT and OXY COLD BAR represent.

Get rid of static-caused headache forever. Send us specifications of your equipment. We'll provide expert recommendations without obligation. DON'T DELAY!

1-196-1

HERBERT PRODUCTS, INC.
188 LINDEN AVENUE • WESTBURY, N. Y.

CIRCLE 259 ON READER SERVICE CARD

INDUSTRIAL ENGINEERS

- MODERNIZATION PROGRAMS
- PLANT LAYOUTS
- COST SYSTEMS
- COST REDUCTION REPORTS
- WORK LOAD STUDIES
- MANAGEMENT PROBLEMS
- SPECIAL REPORTS

GREENVILLE, S. C.
Dial CEdar 2-3868
FALL RIVER, MASS.
Dial OSborne 6-8261

SPECIALIZING IN TEXTILES SINCE 1914

Ralph E. Loper Co.

CIRCLE 260 ON READER SERVICE CARD

READERS . . .

Do you need more information on a product or service advertised?

USE READER-SERVICE CARD FOR PROMPT REPLY.

News About Men . . . *Begins on page 176*

HANS A. SCHEIKE has been named Lake States sales representative of Appleton Woolen Mills, Appleton, Wisc.

Lester Schner has been elected controller and assistant treasurer of Indian Head Mills, Inc., New York.

Jackson E. Spears has retired as vice president of Burlington Industries, Inc., New York. Mr. Spears, however, will continue to serve the company as a consultant.

William H. Susen has been named chairman of the board of Phoenix Dye Works, Chicago. **Benedict P. Susen** succeeds him as president of the firm.

Cliff Suttle is now assistant chief engineer of Chatham Mfg. Co., Elkin, N. C.

Jay Weemhoff has retired as sales manager of the Automotive Div., Collins & Aikman Corp., after 34 years with the firm.

W. Lindsay Wylie has been appointed sales manager of tufting, chenille, and floor covering yarns at the New York office of the United States Rubber Co.

Joseph Zenorini Sr. has retired as president of the Z. B. Yarn Mills, Inc., West New York, N. J. **Henry Zenorini,** a co-founder of the firm is now president.

OBITUARIES

Warren H. Arnold, 87, retired executive, Kent Woolen Mills, now Kent Mfg. Co., Clifton Heights, Pa.

Julius J. Blank, 72, retired treasurer, Martha Mills Div. of B. F. Goodrich Co., Thomaston, Ga.

Thomas R. Briggs, 62, who was president of the Johnstown Knitting Mill Co., Inc., Johnstown, N. Y.

A. Paul Cohen, 69, retired president and treasurer, Suffolk Knitting Co., Lowell, Mass.

J. Oscar Davis, 76, founder and retired president, Vanette Hosiery Mills, Dallas.

Benjamin Gibbs, 80, who was founder and chairman of the board for the Gibbs Underwear Co., Philadelphia.

Francis J. Holland, 56, former president and general manager, Columbia Mills, Inc., Minetto, N. Y.

James L. Jewell, 81, retired general manager of the Saxon Div., Reeves Brothers, Inc., Spartanburg, S. C.

James McCutchen Sr., 49, plant manager, Erlanger Mills, Lexington, N. C.

Harry D. McGowan, 87, honorary president and retired president and chairman, Imperial Chemical Industries, Ltd., London.

John Peters, 87, retired textile executive, Dominion Textile Co, Ltd., Magog, Que.

John W. Reynolds, 74, former superintendent of Virginia Mfg. Co., now a part of Riegel Textile Corp., Fork Shoals, S. C.

Alden R. Taylor, 74, retired president, Wm. L. Barrell Co., now a part of Wellington Sears Co., New York.

Andrew B. Walls, Jr., 77, retired vice president, American Woolen Co., a division of Textron Inc., Providence, R. I.

TEXTILE DEVELOPMENT SPECIALISTS

A major producer of synthetic fibers has openings for two textile graduates with minimums of five years experience.

One opening will require a thorough knowledge of all phases of textile processing from fibers or yarn to woven fabrics, including fabric design and development.

The other position will require a similar background as it relates to tufting technology.

These positions will involve technical support to sales personnel in marketing products for weaving and tufting. Will contact customers on processing techniques, fabric design and product development.

Good location near Asheville, N. C. Excellent benefits: five-day work week; moving expenses. Send complete resume, including salary requirements, to Employment Manager, Enka, N. C.

AMERICAN ENKA CORPORATION
Manufacturers of Rayon and Nylon

ADDRESS BOX NO. REPLIES TO: Box No.
Classified Adv. Div. of this publication.
Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 645 N. Michigan Ave.
SAN FRANCISCO 11: 255 California St

POSITIONS VACANT

Wanted—For Canada: Head Dyer to assume control of all dyeing and finishing operations in small synthetic plant. Excellent remuneration for right man. Apply, giving full details to P-7330, Textile World.

POSITIONS WANTED

Foreign Assignment Wanted—Textile Technician 41 yrs. old with 20 yrs. experience in bleaching, dyeing, printing & finishing all fabrics. PW-6960, Textile World.

Production Manager: Technician-Stylists-Mill Executive in plain, fancy, Jacquard and good New York experience wishes position as production manager or liaison in multiple plant operation, preferably in filaments. PW-6970, Textile World.

Textile Superintendent—Thoroughly experienced in preparatory and weaving all fabrics, natural and man made fibers. Know all types C&K and Draper looms. Available for domestic or overseas position. PW-7280, Textile World.

Textile Chemist—B.S. degree, over 13 years in research and development of sizing and lubrication of man-made yarns. Excellent record of accomplishment in textured yarns, woven label, lace, hosiery, tricot, etc. In charge of textile laboratory. PW-7268, Textile World.

College Graduate, employed, 7 years experience cotton and synthetic weaving, C&K and draper looms. Seeking position as weaving Supt. or Asst. Foreign or domestic. Resume upon request. PW-7224, Textile World.

Man with Gen. Mgr., Prod. Mgr. and plant Supt. experience manufacturing ribbons, tapes, elastics and novelties using all synthetic and natural fibers, would be interested in a new challenging opportunity. PW-7322, Textile World.

Raschel mechanic with 35 yrs. exp. specialized in multi bar lace, analysis, layout, also solid background in elastics, desires position as supervisor, asst. to manager. Relocate. PW-7352, Textile World.

Textile Engineer offers broad experience in manufacturing and consulting engineering. Desires more callenging association with mill group or with established A/E firm of medium or small size. PW-7390, Textile World.

Looking for a job in a textile mill as Foreman or Fixer. At present working for an American firm in Puerto Rico as Foreman. Twenty nine years old and eleven years experience in Draper (XD) looms. Very good references. PW-7361, Textile World.

SELLING OPPORTUNITY WANTED

Want high caliber Sales Representation in the Carolinas? College graduate, eight years experience in the region selling textile and industrial chemicals, mill supplies. Proven performance. Reply to RA-7307, Textile World.

WANTED

Anything within reason that is wanted in the field served by Textile World can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the busines paper they read.

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

DISPLAYED —RATES— **UNDISPLAYED**

Individual Spaces with border rules for prominent display of advertisements.

The advertising rate is $14.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

Employment Opportunities—$33.80 per inch, subject to Agency Commission.

An advertising inch is measured ⅞" vertically on one column, 3 columns—30 inches—to a page.

$1.50 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Positions Wanted take one-half of above rate.

Box Numbers in care of our New York, Chicago & San Francisco offices count as one additional line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

October Issue closes September 15th in N. Y.

NOW IS THE TIME TO BUY

154—XD 46" 20-harness dobby Draper Looms
80—XD 36" 20-harness dobby Draper Looms
72—6-6 36" B/S 2 x 1, C&K Looms
20—XK 44" TAFFETA motion, Draper Looms
5—#50 Universal Cone Winders
2—Whitin Speed-O-Matic Quillers, 1956
200—Abbott Quiller motors & other parts
12—Deliveries Whitin hi-coil drawing, 1949
4—Whitin 1949 Lap Winders
2—Johnson slashers, 7 can, Teflon
1—Magnesium Sipp Warper, 600 end creel
2—Warpers & 1000 end creels, Reiner & Sipp
1—Universal creel, 350 ends
1—Sipp-Eastwood creel, 700 ends
6—Bobbin B'rippers, K & L, also roving
2—Tensionless Batchers, DC
6—B/C warp tying mach., LC LS LL K
1—Cloth Trimmer, 72", with Kaumagraph
22—#7 Dobbies, ⅝ gauge, 16 harness & arches
7—Draper E looms, 50" cloth

SUPPLIES

10—SS tanks & kettles, up to 1000 gal
5000M—Stop Motion Drop Wires, all types
15M—Single & double rod harness frames
2000M—Heddles, 10-16". Also selvage heddles
500M—Quills, 3, 5, 6 butt, all lengths
750—NEW hank clocks & used pick clocks
200—Parks-Cramer humidifier heads
6—S.S. Hook Reeds, 8-15 dent
500—Electric Stop motions and parts
8000—Gates Rubber & Danco Canvas Lug Straps
3000—Gates Texhide and rawhide pickers
15,000—Pick Gears for E, K, XD, XK Looms
50—Motor Drives for Model E Looms
300—Loom beams 24", #6 pitch heads, 44" b/h

SHOP EQUIPMENT

Lathes, Milling machines, Grinders, Buffers, Air Compressors, Conveyors, Trucks, Motor & Switches, 1000 ft. loom beam or lap handling track.

MACHINERY SALES CORP.
131 Court St., P.O. Box 367
New Bedford, Mass., Tel: Wyman 9-6273

CIRCLE 400 ON READER SERVICE CARD

All Types of Used Machines for Knit Underwear Mills

SCOTT & WILLIAMS and WILDMAN RIBBERS 8 to 16 cut, Sizes to 24"
TOMPKINS SPRING NEEDLE TABLES, All sizes and gauges
WILDMAN SPRING NEEDLE FBSS
WILLCOX & GIBBS FLATLOCKS, MERROWS, SINGER & METROPOLITAN SEWING MACHINES
***Also Various types of* SPECIAL MACHINES, CUTTING—CALENDERING—PRESSES, Etc.**
Send us your Inquiries.

MOHAWK VALLEY KTG. MACH. CO.
Dwyer Ave. at Pixley St. Utica 2, N. Y. Phone 4-8109

CIRCLE 401 ON READER SERVICE CARD

EXPORT SALES

Leading international textile chemical company requires two college graduates with several years dyeing and finishing experience in textile mills for assignments in technical sales to foreign markets.

One position will require a minimum period of product orientation in company laboratories before assuming sales responsibilities working out of home office. The second position involves a longer period of home office assignment before moving into overseas sales work.

Extensive travel outside the United States will be involved with possible relocation at later date. Salary and expenses. Please give complete data in first letter.

P-7201, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

COMPLETE BOBBIN SERVICE

We modify and refinish customers' bobbins.
We buy and sell used bobbins, cones, spools, etc.
We sell reconditioned bobbins of all types.
We furnish new bobbins by leading mfgrs.
We mfg. all types of specialty wood items.

SOUTHERN BOBBIN WORKS, INC.
200 McKoy St., Greenville, S. C.
P. O. Box 3514 Telephone CEdar 3-2737

CIRCLE 407 ON READER SERVICE CARD

WANTED
EXPERIENCED SUPERINTENDENT

Capable of taking complete charge of jacquard and shaft weaving mill on synthetics and cotton yarn, located in Pennsylvania.

State experience, age and references.

Reply to:

P-7236, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

ASSISTANT MANAGER

for dyestuff application Lab. Applicants with good overall experience and special knowledge of vat dyeing preferred. Located in New Jersey.

P-7074, Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

TEXTILE ENGINEER

To develop equipment for weaving metallic filaments and yarns on plush type weaving principle. Must have degree in Textile Engineering with five years' experience weaving production, processing and textile weaving machine development with emphasis on plush loom operation.

Write C. G. JONES, Dept. 131

Goodyear Aircraft Corporation
Akron 15, Ohio

TEXTILE PLANT MANAGER

Excellent opportunity for man with engineering degree or background with a knowledge of costing, scheduling, design, specialized machinery and supervision of plant personnel. CARPETING, DUCK AND BELTING. Send full resume, salary desired and geographic limitations.

Reply G.P.O. #4 N.Y.C.

Extraordinary Liquidation!

THE MODERN DYEING AND PRINTING MACHINERY OF THE FORMER EUREKA PRINT WORKS, CLIFTON, N. J.

BLEACHING
1 Morrison Continuous Rope Bleaching unit consisting of
8 Rodney Hunt Stainless Steel Tensitrol Rope Washers
1 Morrison Stainless Steel Peroxide Saturator
1 Morrison S.S. J. Box, 24'
1 Weisner-Rapp S.S. Continuous Rope Bleaching Unit consisting of
1 Weisner-Rapp J Box, 20' high
1 Aluminum Peroxide Tank, 5000 gals.
24 Allen Kiers

MERCERIZING
1 Butterworth Mercerizing Unit consisting of 60' frame wash unit, singers, 3 roll padder, recuperator, new chain, MG set.

FINISHING
34 S.S. Dry Cans 90 x 30" dia.
1 Proctor & Schwartz Roller Cure Dryer 24'
1 Butterworth 90' Enclosed High Speed Tenter Frame, Proctor & Schwartz housing
1 Butterworth 80' Enclosed High Speed Tenter Frame and housing
1 Textile 70' Enclosed High Speed Tenter Frame and housing
1 McKiernan-Terry Combination Schreiner, Friction and Rolling Calendar, 50 ton
1 Perkins 3 roll 100 ton Hydraulic Calendar
2 Perkins 5 roll 50 ton Calendars
1 Proctor & Schwartz Gas Fired Loop Curer
1 Morrison Rubber Belt Comp. Shrinkage Range, Reliance drive
61 S.S. Dry Cans 47", 30 lbs. pressure
44 S.D. Dry Cans 142 x 23" dia.
1 Cocker Indigo Dye Range, 1948

WASHING AND DYEING
1 3 roll Morrison Padder, motor
1 Morrison Continuous Dye Range consisting of predryer, 3 roll padder, microset,
8 compartment wash unit, 24 dry cans, MG set
1 S.S. 4 compartment Open Width Washer
1 Burlington S.S. Beam Dyeing Unit
8 Textile & Werner S.S. Dye Jiggs 50" to 70"
13 S.S. Dye Boxes, 4'-12'

PRINTING AND AGEING
1 Proctor & Schwartz Loop Ager, 1954
1 Rice, Barton & Fales 50" 10 color Print Machine
1 Rice, Barton & Fales 8 color Super Precision Print Machine 50"
5 Rice, Barton & Fales and Textile 8 color Print Machines 50" to 66"
4 Vat Agers, brass rolls
1 R. B. & F. Mandrel Jack
3000 Engraved Copper Rollers

OTHER MODERN TEXTILE MACHINERY
87 Draper XD Looms, 54" reed, Diehl and motor, 1947-51
56 Universal #10 Uptwisters, 184 spdls. 2 lbs. headless package, 1950
56 C & K Big 6 S6 Looms 56" b.s. 1948

Republic
TEXTILE EQUIPMENT COMPANY

APPRAISALS • PURCHASE AND SALE TEXTILE MACHINERY • LIQUIDATION OF MILL PROPERTIES

40 Worth Street, New York 13, N. Y. • COrtlandt 7-1590

CIRCLE 402 ON READER SERVICE CARD

200—C & K 56" S16 & DRAPER 46"-64" XD LOOMS WITH UNIFIL

3—ATWOOD 10B—6" TRAV.—6" GAUGE—4½" RINGS

6—S.S. ROTARY & PADDLE DYERS—100-400 LBS.

3—Fidelity Reelers—2 Arms
1—Arnold Rubber Covering Machine
11—Unirails—Model 501
8—U. S. HDless Pkg. Twisters
70—Foster 75A Winders
5—Universal #45 Winders
1—Former with Backstand

S.S.Skein Dryers—1-12, 1-10, 1-7 Arm
4—Tubers w/Yardage Clocks
10—Atwood & Sipp Redraws
1—Fletcher 2 Fly Reeler
4—H&W Steam Boxes
1—Haskell & Dawes Circular Twisters
2—Cissel Rotary Dryers

100 UNIVERSAL NO. 50 WINDERS

BOBBINS—SPOOLS—QUILLS—*All Sizes & Types*

PENNSYLVANIA SPOOL & EQUIPMENT CO.

425 LEHIGH ST. ALLENTOWN PA. Phone HE 3-7545

CIRCLE 403 ON READER SERVICE CARD

FOR SALE

Good Machinery—Low prices

2—Air Perme-ator Humidifiers.
1—VV Clip Tenter Frame 50' x 60".
1—VV Palmer—60".
1—Sipp E. Hy Speed Warper 83".
S.S. Dye Jiggs 50" & 60".
1—VV 3 Roll Calender 60".
Cottage Steamer—8' x 12'.
33—Spdle Whitin Schwelter Auto Quillers.
1—RB&F 44" 5 color print machine.
1—Hinnekins Moire Calender 50" New.
1—Hercules Extractor 50" Copper Basket.
1—Johnson Sizer, 5 Copper Cans 66".
1—Uster Portable Elec Knot Tier 72".

STAVE & KESSLER
106 Kearney Street
P. O. Box 1611 Paterson 16, N. J.

CIRCLE 405 ON READER SERVICE CARD

Buying

Good USED Equipment

is frequently the difference between having needed equipment or doing without it.

TEXTILE AUXILIARIES INC.

SPECIALIZING IN BLEACHING, PRINTING, DYEING AND FINISHING EQUIPMENT

1—Textile Vertical Set of 8—23" dia. by 50" Dry Cans with 3 Roll Padder for Narrow Fabrics, also 1 set of Horizontal, 11—23" dia. by 24" Copper Dry Cans with 3 Roll Padder.
2—10', 1—6' and 3—4'x9'x30" S.S. Dye Becks with set of Riggs Lombard Pneumatic Squeeze Rolls, 7½" diameter, S.S. bottom roll and rubber top roll.
2—Cook Detwisters.
2—80x50", 1—40'x54" and 1—30'x72" Winser and Jerauld Tenter Frames.
Reeves Drives all sizes, open and closed.
1—5 Color R.B. & F. Printing Machine, 44" complete with Backrigging, Dry Cans, motor, etc.
1—Butterworth Pin Tenter Frame 75' long by 200" wide, complete with tension bars, take off, housing 37' x 20' x 7'6", turbine blowers, produce 300 degrees F. and Chromeloux setting unit, 213" rods, 450 degrees F., blowers, fans, etc.
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20—44" XK Looms, Plain Harness Motion
3—Revolvator Port. Hoists, 750 & 1800 Lbs.
2—#65 Abbott Cone Winders
60M—14" Drawtex Heddles in 51" Frames
1—Ideal Stencil Cutter, ⅝" Letters
28—S. S. Hanks & Kettles, 20-3500—Gal.
5—M-1 PIV's, 2:1, 4:1, 6:1
300—Barber Colman Section Beams, 54½"x26"
5—Barber-Colman Port. Warp Tying Machines
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155—Arms of Smith Drum Stainless Steel Cascade Type Skein Dyeing Machines, 1 Arm, 3 Arm, 7 Arm, 12 Arm, 20 Arm.
30—Enclosed and Open All Stainless Steel Dye Becks, 10′ through 20′ widths.
18—Enclosed and Open All Stainless Steel Dye Jigs, 50″, 60″, 78″ widths.
2—All Stainless Steel 500 lb. Twin Kier Package Dyeing Machines.
1—4 Port Package Dryer.
5—Skein Dryers (Double Truck Dryers).
8—Padders, 50″, 65″, 72″ widths, up to 15 ton pressure.
4—Loop Dryers, 3 fans to 20 fans, gas heated and steam heated types.
2—80 Ton Hydraulic Calenders, 50″ and 48″ widths, 3 rolls.
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2—65″ Palmers.
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1—66″ Steamer, 16′ long.
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1—66″ Hinnekens Boil-off Machine.
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3600—Rebuilt Tenter Clips.

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17—64″ x 23″ Stainless Steel Dry Cans, ball bearing.
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1—Morrison 72″ Heat Setting Machine.
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1—Burlington Type Beam Dyeing Unit, stainless steel, 76″ wide, with 3 drums.
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1—65″ 2 Burner Singer.
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28—Draper XD Looms, 54½" bet. swords, 8 looms with "Unifil"—Age 1951
2—Abbott Hi-Speed Quillers, 1—120 spdls., 1—100 spdls.
1—Johnson 7-can Slasher, 30 x 60", dbl size, 13 beam creel
1—Uster Tying-In Machine, portable, with frames
1—Cocker Hi-Speed Warper 54¼" wide, magazine cone creel, 4 lb. pkg.
2—Terrell Model 1 Bobbin Stripping Machines
5—Cloth Inspection Machines, 54" wide
1—Cyclotherm Steam Boiler, 700 lbs. per hr. 15 H.P.

Loom parts, beams, harness frames, bobbins, heddles, drop wires, and Air Compressors.

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72—C&K, S6 Looms, 56", 2x1, 1947-50
12—C & K W3 Looms, 82" swords, convert.—#14,300's
12—C & K W3 Looms, 82" swords, convert.—L.O. #14930
10—C & K W3 Looms, 64" swords, convert.—L.O. #14292
4—Johnson 7 can Slashers, 74", 60" wide, complete
1—Cocker 9-can Slasher 60", complete
1—BC Tying-In Machine, Model LC, manual
1—Abbott Paper Cone/Winder, #65, 100 spdls., Age 1948
1—Fletcher D.D. Uptwister, 40 spdls.—1953

1—Fletcher Stainless 30" Extractor, Auto. timer
1—Becco Continuous S.S. Bleach Range, J-Box, 2000 yd/hr. Saturator—1954
1—Morrison Williams Range 60", 15 ton, pad, 2-Williams Units, 3-washers, Vac. Extractor, MG Set—1948
1—Verduin Hyd. Padder, 60", 15 ton, 20" dia. rubber rolls
1—Morrison Micro-Set Pad. 60", 8 ton, 14" dia. rubber rolls
1—Richard Hyd. Calender, 60", 40 ton, 3 rolls, varidrive
1—P & S Loop Dryer, 60' long, 126" sticks—1948
1—Rodney Hunt Stainless Encl. 16' Dye Box
1—Van Dorne Stainless Encl. 12' Dye Box
2—Smith Drum Stainless Package Dye Units, 500 lb.—1948
1—Obermeir Stainless Package Dye Unit, 300 lbs.—1 carrier
1—P & W Hi-Speed Davidson Shear, 3 blades, 66½"—1947
3—Werner Stainless Encl. 70" dye Jiggs, no motors
1—Meadows Hyd. Embossing Calender, 72", 25 ton—1949
1—Rodney Hunt Stainless 40" dye unit, pneu. padder—1952
1—Rodney Hunt Stainless 2 comp't Washer, 80" wide
14—Stainless Steel Dry Cans, 74" wide, 30" dia.
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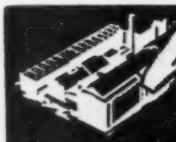

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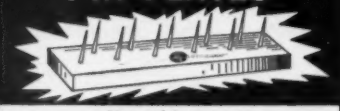

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1—90' VV super frame 66" wide with National Housing, Mt Hope Scray, Perkins Automatic batcher and 70" Pneumatic padder 15 ton

2—VV tuber doublers 50", 66", 70"

1—Werner 60" Pneumatic padder 12 ton

3—VV BS calendars—50", 55", 60" with spare rolls

2—VV double pump decatizers with blankets

5—VV tensionless tubers 60"-70"

1—National drybox 104" 20 fan late style

22—Dyebecks, wooden SS lined and SS self sustaining

2—3' ss enclosed dye becks

1—Hercules 48" extractor SS basket

4—Hinnekens boiloff machines—50", 60", 66", 70"

3—Werner 50" Pneumatic embossers with inking attachments and spare rolls

1—Verduin Pneumatic glazing & friction calendar 20 ton

4—VV 60" Model 720 Jiggs, tensionless with SS covers

3—VV 65" Jiggs SS

5—Werner 70" SS Jiggs

41—35 lb SS cans 70"-110"

2—VV 50' tenter frames with national Housing 18' 60" & 66" wide

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1 Davis & Furber, 24" mixing picker, M.D.

1 Sargent 5 bowl scouring train 48" wide, with 54" feed box, M.D.

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1 Parks & Woolson Crop shear, Year 1959, M.D. (hardly used)

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1—Venango Autoclave, 30 lbs. p.s.i., 40" diameter x 36" long, 12" diameter port hole. 1953 model.

2—Van Doorne stainless steel Dye Boxes, 8' wide, 60" deep, open top. Motor driven.

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72—Draper Modified D Cam Looms, 45" Sand Roll, 48" Reed Space ½ HP, 3/60/550 Volt Motors

WARPING

1—Reiner High Speed Warper 1945 with 820 Live End Sipp Eastwood Type DX Magazine Cone Creel
1—Reiner High Speed Warper 1949 DW500 with 820 Live End Sipp Eastwood DX Magazine Cone Creel
40—Hayes Aluminum Section Beams 30" dia. Head x 54¼ x 12" Bbl.

SLASHING

2—Johnson 7 Can Slashers, 1946-7 60" x 30" Stainless Steel Cans Reeves Drives, Stainless Steel Size Boxes, Controls, 10 Beam Creels, Exhaust Fan, 550 Volt

WINDING

192—Spindles Whitin Schweiter 1949 Model MS-8 units of 24 spindles ea.
7—Spare Units Unifil-1960
2—120 Spindles each Abbott Winders with Pin Board Attachments

CLOTH ROOM

7—Hermas Inspecting Machines Forward and Reverse Variable Speed, 52" Cloth
2—Hermas Inspecting Machines Variable Speed, 52" Cloth
1—Hermas Horizontal 4 Blade Shear, 58" Blades Ind. Motor driven Mt. Hope Expander, #30 Blower
1—Hermas Batching Unit with Hermas Railway Sewing Head.

COMPRESSORS

1—Westinghouse Style 3CB Twin Stage water cooled, 76 CFM @ 250 RPM Air Receiver and Aftercooler 40 HP 3/60/550 Volt Motor
1—Ingersoll Rand Model #554 5 x 5 x 4 x 4 Twin Stage, Air Cooled Air Receiver and Aftercooler 10 HP 3/60/550 Volt Motor

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1—B. C. Knotting Machine LS-191 Motor Driven, 15" width
104—Parks Cramer Atomizer Heads with controls, etc.
2—Terrell L Bobbin Strippers #887 & 857 Model A3 with return conveyors, Bobbin Hoist #167 and double scray

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1—65" Morrison Button Breaker

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1—J. T. Beaty upstroke Baling Press 54" x 27".
1—Economy #634 Baling Press 54" x 27" bales.
1—Economy #127 Baling Press 54" x 27" bales.
1—Consolidated double box Baling Press 54".
1—AMBACO #3A horizontal Baling Press.
1—Lummus double box downstroke Baling Press.
1—Sutton Opener & Scutcher for 100" goods.
50—3¾" S&W 474 needle Knitting Machines.
6—Fidelity Skein Reelers 54" & 72" skeins.
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1—Toledo Dial Scale total capacity 6,250 lbs.
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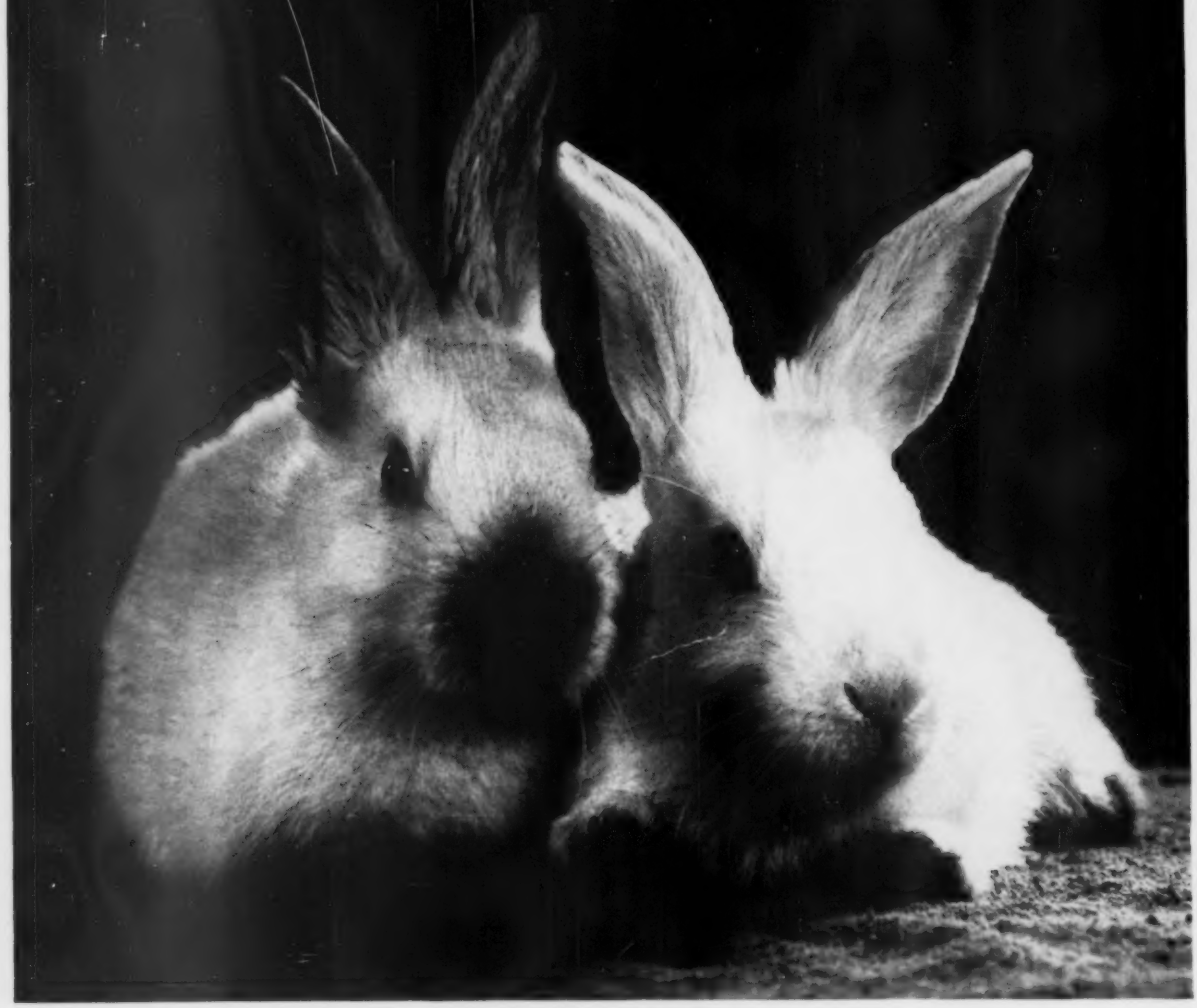

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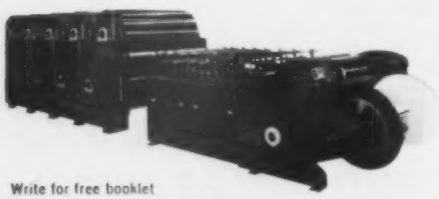

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